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A Paper
ON
NERVOUS AND MENTAL MANIFESTATIONS OF THE CLIMACTERIC.*

BY
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THE climacteric or involutional period is that phase of life during which the reproductive functions diminish and become finally extinct. The most obvious manifestations of it in women are the disappearance of menstruation and power of conception; but associated with it, and, in fact, forming an essential part of it, are a series of bodily and mental changes, the appearance of which frequently precedes the onset of menstrual irregularity, and which often continue for a time after menstruation has stopped. Those of them which will form the basis of this discussion are more or less transient, but others are permanent, and are the hall-marks of middle age. Such are wrinkles, grey hair, and a calmer, if more conservative and less romantic, outlook on life.

The majority of women pass through the climacteric with its psycho-physiological adjustments without great discomforts, and in some, who are specially favoured perhaps with a balanced natural equipment and a happy environment, it hardly causes a ripple in their lives. Others, however, are less fortunate, and to the nervous and mental disorders which beset them special attention will be given.

Men, as well as women, are compelled by nature to experience this period of involution, but in them it begins about ten years later, and on the whole the reactions are less intense. It is an easier transition, unaccompanied by flushes and other discomforts of vasomotor origin, and although their waist line increases, and they lose their youthful vigour, middle age is apt to be accepted more philosophically, perhaps because their interests are more diffuse and absorbing, and the loss of the power of reproduction means less to them than to women. But, in general, the mental and physical changes at the climacteric are of the same order in men as in women, although, because of the later age at which it occurs, and the greater liability to arterial degeneration, complicating psychoses more often merge into the pre-senile degenerative mental states. I propose, therefore, to confine my contribution to the discussion to the nervous and mental phenomena in women at the natural climacteric, and to do no more than indicate, when occasion arises, features that distinguish the artificial menopause from ovariectomy in young women.

PHYSIOLOGY OF THE CLIMACTERIC.

Involution is essentially a physiological process, a general reaction to ovarian deprivation. It commences, as a rule, between the ages of 40 and 50, and lasts for two or three years. There is much that is yet unknown about the nature of the reaction, but it is clear that the primary response is due to other endocrine glands, more particularly those that are in most intimate functional relationship with the ovaries. Of these, the suprarenals, pituitary, and, in particular, the thyroid, play a leading part. Involved in the reaction is the nervous system, through the autonomic or vegetative portion of it, which is delicately influenced by, and in turn influences, the so-called ductless glands, especially the thyroid and suprarenals.

From the available experimental and clinical evidence, it would appear that the glandular reaction may be towards increased or diminished activity, which, however, is not uniform, but in general varies with each gland, and also with the constitution of the individual. According to Maranon,[1] whose work ought to be studied by those who are interested in the subject, there are usually signs of overaction of the thyroid in the normal climacteric, to which, with lowered threshold of response of the sympathetic nervous system, may be attributed such symptoms as emotionalism, palpitations, tachycardia, sensations of discomfort in the chest, sweating, loss of weight, and occasionally goitre. Less often, manifestations of diminished thyroidal function appear, with signs of myxoedema, such as lethargy, sluggish mental reactions, dryness and inelasticity of the skin, slow pulse, loss of hair, and increased sensitiveness to cold. They are more common after castration than in the natural climacteric (Maranon). My personal observations agree with those of Maranon, and have led me to believe that the affective reactions at the change of life are, although other important factors come into play, the result of dysthyroidism. If the obesity of middle age can be attributed to the pituitary, this gland reacts to ovarian insufficiency more often by diminished than by excessive activity. Examples of acromegaly, however, do occur, and I have at present two patients under my care at the London Hospital.

In regard to the suprarenals, it has been shown by Hannan[2] and others that the flushings of the climacteric can be provoked by subcutaneous injections of small doses of adrenaline, and, in fact, in their symptoms, resemble the reactions to adrenaline in pre-climacteric people. It is possible also that the transient hypertension and glycosuria common at the change of life are due to hyperadrenalism, a view that is held by Culbertson.[3]

The functions of the cortex of the suprarenals are still imperfectly understood, but the development of masculine features in cases of adenoma of this portion of the gland may indicate that the occasional growth of coarse hair on the chin, legs, and trunk, a deep voice, aggressiveness, and other supposed male attributes may be due to excessive functional activity of this portion of these glands.

The physiological basis of climacteric symptomatology can therefore be said to consist of instability of certain endocrine glands, and through them, of the autonomic nervous system, the whole train of events being set agoing by ovarian insufficiency. This state of physiological unrest temporarily upsets the mental as well as the physical balance of the individual by giving rise to emotionalism, with a general tendency towards gloominess, apprehensiveness, and irritability. In all probability it is to dysthyroidism that the affective reaction is mainly to be attributed.

SYMPTOMS OF THE NORMAL CLIMACTERIC.

After ovariectomy at the pre-menopausal age, arrest of menstruation is the first of the train of events that follow abolition of ovarian function, but in the natural climacteric, occurring at the usual age, other symptoms and signs, notably emotionalism and flushes, commonly precede menstrual irregularities, and persist for a time after menstruation has ceased. It is for this reason that Maranon[1] has rightly insisted on the recognition of three stages in the clinical picture of the climacteric: (1) pre-menopausal, (2) menopausal, and (3) post-menopausal.

In briefly describing the phenomena of the normal climacteric I will mention only the more usual symptoms and signs which come within the field for discussion. Of these the most constant can be grouped under the headings of emotional instability, vasomotor reactions, and change in sex feelings. As an illustration let us take the case of a married woman who has had, on the whole, a healthy life, a small, well-doing family, a moderate share of difficulties, and has dealt with them courageously and successfully. At the onset of the climacteric, slight changes in temperament are noticed by the members of her family and her intimate friends. She becomes more easily worried and upset by trifles, is apt more than before to take a gloomy view of events, and to be obsessed with the difficulties that crop up in ordinary domestic and social life. Phases of depression distress her, and she surprises her friends by breaking into tears for insufficient reason. She becomes irritable and fault-finding, especially with her husband, children, and servants, and may at times be

* Read in opening a discussion in the Section of Mental Diseases and Neurology at the Annual Meeting of the British Medical Association, Winnipeg, 1930.

peevish and complaining, so that nothing seems to be right. She appears to live in a state of mild anxiety and apprehensiveness, and will say that she does not understand what has come over her. Her sleep is disturbed by flushes; dreams of domestic difficulties trouble her, and she is liable to wake early with her mind full of worries. As the day goes on she improves, and by the afternoon is almost herself again. In spite of it all, she manages to run her house, see her friends, and carry out her other duties in an apparently competent fashion, but she and her family feel the strain.

When her periods become irregular, and in time cease, she knows that she is going through the change of life, and bears it more or less philosophically. Gradually she regains her accustomed emotional balance; her flushes become less frequent, till at last, usually some time after the menopause is over, this rather disturbing crisis is passed, and peace is restored.

The flushes which form so common a feature of the climacteric and act as an irritant, compelling attention to the bodily state, warrant a separate, if brief, description. They occur in attacks, momentary or lasting for minutes, which vary in frequency and intensity, but are often worse in the night, probably because they are excited by warmth in bed. In the longer attacks they may be preceded by headache, palpitation, or a sense of oppression in the chest, symptoms which disappear with the onset of the flush. This consists of an erythema, which is distributed chiefly to the head and neck, and is accompanied by a general sensation of warmth, with or without waves of heat. These waves spread rapidly. In the night attacks there is often a sense of suffocation that compels the woman to sit up to breathe. Flushes are often spontaneous, but may be provoked by emotional disturbance, by increase in the external temperature, or by taking food. The slight attacks are much milder, and consist only of a sensation of warmth, followed by mild sweating, that gives rise to little distress.

Other nervous symptoms, such as headaches, pains in different parts of the body, giddiness, and itching, either general or in the external genitals, are common and distressing enough, but are less frequent than flushes, and may be mentioned here only in passing. With the flushes they are, however, important, not only on account of the physical discomfort to which they give rise, but even more because they aggravate the tendency to emotional instability, the development of a fear of mental and physical disease, and a gloomy outlook on life. At the same time I would stress that although the phenomena just described may be looked upon as being within the limits of the normal climacteric reaction, many women pass the transition to middle age so easily that their symptoms barely disturb "the even tenor of their way."

Factors Determining Mental Disorder.

Some women, however, are harder hit, and break down mentally at the change of life. Before entering upon a discussion of these complications, it would be profitable to consider the factors that appear to determine their development.

Constitution and Temperament.

In the first place, it will be generally agreed that a history of mental disorder in the family or in the previous life of the individual has an important bearing on the occurrence of psychoneuroses or psychoses at the climacteric. She may pass through it unscathed, but the dice are set against her. The odds are not easy to estimate, not only because of the difficulty, especially in the poorer classes, of getting correct information about relatives with whom they may be out of touch, but also on account of the varying standards of different investigators.

Emotional and Physical Background.

That causation is never simple is true of all diseases, and is all the more so in mental illnesses of the kind we are considering. They are reactions that are evoked by circumstances that may be mental or physical, or both, but the fact that such stimuli only occasionally precipitate an abnormal response clearly indicates the importance of individual background.

The constitution as influenced by heredity is admittedly important, and from it temperament cannot be separated. The emotional nervous type of woman, who has imperfectly stood up to the ordinary wear and tear of life, will be more apt to be affected adversely by the upheaval of the climacteric than the woman of more phlegmatic temperament. So also educational equipment, in so far as it has led to cultivation of real interests outside herself, whether in regard to the welfare of her family or in intellectual pursuits, will help to prevent unhealthy introspection.

The severity of environmental difficulties has causal significance. Worry or poor health, especially preceding the menopausal period, is apt to lead to trouble. The healthy mother, happy in her family circle, or the single woman with suitable occupations and friends who satisfy her emotionally and intellectually, is likely, if of good stock, to have little trouble at the change of life.

Preconceived Notions of the Climacteric.

It is a popular belief that the change of life in women is associated with illness. The fear that this belief engenders may lead to much unhappiness by accentuating the emotional instability natural to the climacteric. Unfortunately, physicians in this respect are not entirely free from blame; for they are perhaps too inclined to forget, when discussing the climacteric, that, as a rule, it is associated with only slight disturbances. Thoughtlessly, they may also, as a ready means of getting out of a diagnostic difficulty, attribute symptoms which they cannot explain to the climacteric.

Varieties of Mental Disorder.

Mental complications may be divided into two groups: (1) psychoneuroses, (2) psychoses. While such a classification is justifiable, everyone with experience of abnormal mental states at the change of life will admit the difficulties in differential diagnosis, particularly between anxiety neuroses and the early phase of psychotic depression. In fact, the difficulties are not limited to this field, for, looked at from the point of view of psychological reaction, the main difference in the mental manifestations of the normal climacteric, the psychoneuroses, and involutional melancholia is in essence only one of degree. They are, so to speak, a continuity, differing in quantity but not in quality, with their symptomatological background of apprehension, depression, and emotional instability. Essentially affective reactions, they are slight or severe according to the woman's inheritance, mental toughness, and adaptability, the stresses to which she has been subjected, and perhaps also to the balance of her endocrine reactions at the climacteric. The presence of delusions and hallucinations may indicate no more than an emotional disturbance of unusual severity and duration.

Psychoneuroses.

Anxiety, gloominess of outlook, and physical discomfort are the basic psychoneurotic symptoms which, as has been said, differ only in degree from the disturbances that can be regarded as normal at this time of life. In consequence it is difficult to delimit normal reactions, but, for practical purposes, one might consider that the line has been crossed when emotionalism is persistent and severe enough to lead to more or less pronounced change in behaviour and to invalidism. She has full insight, but cannot, without help, overcome her difficulties.

Strictly speaking, the term "psychoneurosis" ought to be confined to those anxiety states which have been precipitated by domestic or other worries or by fear of the menopause and its consequences, and which, at the same time, do not present psychotic features. Such cases, of course, occur, and differ from the anxiety neuroses of an earlier age only in so far as they are coloured by the significance of the menopause and its physical discomforts.

All will, however, admit the difficulties of differentiating psychoneuroses from early depressive psychoses, and there can be little question but that many cases labelled as

neuroses are really examples of psychotic depression, either mild or at the prodromal stage.

The clinical picture of the psychoneuroses at the change of life need not be described, but attention might be drawn to the frequency, as in the psychoses, with which thoughts and obsessions have a sexual colouring. The suspicions, jealousies, and false accusations directed against the husband are, when without justification, due to faulty adjustment to the loss of reproductive power, and ideas of diminished physical attractiveness, fostered by the appearance of grey hair, wrinkles, and other signs of middle age. Women who are naturally suspicious, and whose marital relationships have not been felicitous, for imagined or real reasons, are especially liable to develop such symptoms. They thirst for attention, look for slights, demand concessions, become spiteful and unjust to younger women, and seem to get a vicarious satisfaction in causing trouble. At the same time, the desire for sexual intercourse may diminish even to frigidity, or it may increase or become perverted, although this is unusual.

Psychoses.

While the proportion of cases of serious mental disorder that can apparently have any connexion with the change of life is small in relation to the number of women who pass through the climacteric, yet this period is admittedly, like puberty and pregnancy, a crisis during which insanities are apt to appear in susceptible women. In men the so-called involutional psychoses develop later, and are more prone, for that reason, to merge into the pre-senile and senile psychotic states.

Jones and Minague[4] have plotted a curve of incidence of insanity in woman on the basis of age. They found that there is a progressive rise up to about the age of 40, after which there is a short descent, followed by a plateau, which is continued to the age of 65. There is then a rapid rise due to senility. From the statistics of the Lunacy Commissioners of England and Wales in the three years preceding 1912, Percy Smith[5] considered that the change of life was a cause or associated factor in 8.2 per cent. of insanities in female patients admitted to public or private mental hospitals.

Melancholia.

Of the psychotic syndromes at the climacteric, melancholia is by far the most common. For example, in Percy Smith's series of 219 cases it formed 66 per cent. Large as this proportion is, it is, I believe, really greater, for asylum statistics do not include the majority of milder cases, nor can they be relied upon to indicate the duration of the disorder, except when it is severe. Admission to a mental hospital, especially under certificate, is delayed as long as possible—at all events in Great Britain—by relatives and family physician alike. The stigma attached to it is real, and cannot well be overcome until the law is altered. Even then, many patients requiring institutional care would be better placed in hospitals suitably equipped and staffed for dealing with those afflicted with mental illnesses in which the prognosis is good, but from which patients requiring certification are prohibited. Further, psychiatrists, like asylums, come under the ban, and, in consequence, many patients with mild psychotic depression, who recover relatively quickly without symptoms that might demand certification, come to the neurologist or general physician rather than to the psychiatrist.

Apart from the frequency and duration of psychotic depression at the change of life, there is the debatable question whether there is such a condition as melancholia peculiar to the climacteric, and apart from manic-depressive psychosis. The diagnostic difficulty lies largely in the fact that the evidence is clinical rather than pathological, and that the reactions of the individual with a varying background of life-history cannot be constant. Nevertheless, there is considerable reason for adopting the view that there is a syndrome of involutional melancholia. First, there is the absence of previous history of mental disorder in a large proportion of cases. In Jones and Minague's[4] series this amounted to between 70 and 80 per cent., and in Percy Smith's[5] to 67 per cent. Secondly, mental and physical retardation, in a considerable proportion of cases of depression, is relatively absent, restlessness being more common. Thirdly, attacks may appear to be precipitated more often by mental and physical disturbances, and so tend less to develop without apparent reason than clear manic-depressive attacks. Lastly, according to the evidence put forward by Hoch and MacCurdy,[6] involutional melancholia, if severe, may run a more chronic course, characterized by almost constant peevishness, hypochondria, ideas of death and poverty, and insufficiency of affect.

The differences in the reactions of involutional melancholia and manic-depressive insanities may depend on constitution, heredity, and mental adaptability alone, or there may be the additional factor of emotional responsiveness in abnormal fashion to endocrine instability, such as occurs at the change of life. There is this to be said in favour of the latter view, although solely on clinical grounds—that depression and anxiety severe enough to be looked upon as psychotic, and appearing for the first time at the climacteric, differ only in degree from reactions which may be considered normal or neurotic at this time of life.

It would be out of place in a short paper to describe fully the clinical picture of involutional melancholia, but attention might be drawn to certain important features of it.

In the first place, prodromal symptoms are commonly present, often in the pre-menopausal stage of the climacteric, which, from their character, may lead to wrong diagnoses. Anxiety, manifested either as vague apprehensiveness or special fears—for example, of cancer—with mild depression, irritability, sleeplessness, headache, and a sense of fatigue, are frequently looked upon as neurotic, until gradually the depression becomes more severe, and delusions develop. Not uncommonly the symptoms of which the patient complains most direct attention to the viscera, and she may only with reluctance admit of a morbid outlook, because of the suicidal ideas associated with it. Such symptoms as anorexia, indigestion, constipation, breathlessness, tachycardia, and pains in different parts of the body, lead the patient to the general physician rather than to the neurologist or psychiatrist. It illustrates the importance of patience and care in history-taking in diagnosis.

Again, as the clinical picture of depression evolves, certain features tend to be outstanding. It is essentially an affective reaction, and although the depression may be profound and continuous, there is little, if any, mental impairment, except when the illness becomes chronic. Hypochondriacal complaints referred to imperfect functioning of the intestinal tract, heart, or other organs, are almost constant, and delusions and hallucinations occur at some time or another in all but the milder cases. Delusions tend to be associated especially with ideas of unworthiness, death, and poverty, and are apt to have a strong sexual colouring. Hallucinations of any of the special senses occur. Phases of inactivity, which may amount to stupor, are broken into by periods of agitation, when the patient, the picture of extreme misery, wanders about aimlessly, wringing her hands and appealing to God in some stereotyped phrase. Impulses to strike, and to use abusive and filthy language, are not rare. The danger of suicide is ever present, and is probably greatest when the depression is less severe, as at the beginning and towards the end of the illness. For this reason the sufferers should never be left to themselves.

In considering melancholia at the change of life, it is usual to differentiate various clinical types, such as simple, anxiety, stuporose, and delusional. For prognostic reasons there is some justification for this plan, if it is not too rigidly applied, but, as Henderson and Gillespie[7] assert, predominance of one group of symptoms over another is probably determined largely by the essential character of the individual. Thus, the naturally suspicious will develop ideas of reference, and so on.

Other Examples.

Brief mention only need be made of other varieties of mental illness met with at the climacteric, because of their relative infrequency compared with melancholia. It is

interesting that mania is comparatively rare, even in obvious cases of cyclothymia, and is suggestive of the bias towards gloominess at the climacteric. When present, it may be acute, with delusions of persecution and hallucinations. Chronic paranoid psychoses characterized by persistent ideas of reference, without much affective change, and sexual delusions of indecent suggestions and assault, occasionally occur. There is usually some degree of mental deterioration. Confusional insanities, with disorientation, hallucinations, and noisy episodes, may occasionally follow extreme exhaustion or septic infection, and mental disorder, with or without polyneuritis from alcoholism, has to be kept in mind. The climacteric age is also the usual period for dementia paralytica in women.

PROGNOSIS.

Vasomotor and nervous symptoms, including emotional instability, tend to disappear, and with the passing of the change of life women commonly enter a period of serenity, which has been happily termed "the autumnal peace of middle age."

The outlook in those suffering from psychoneuroses largely depends upon how far the environmental incompatabilities can be overcome, and the attitude of the woman adjusted to the disappearance of youth and reproductive functions. Domestic happiness, intellectual interests, and physical health are invaluable assets, and much can be done by wise psychotherapy.

The prospect of recovery from psychoses depends upon several factors, most perhaps on the reaction type of the illness, but also upon the physical health and general management and care of the patient.

In manic-depressive states recovery is to be expected as well as in those cases of melancholia appearing for the first time in which unfavourable reactions are not present. Henderson and Gillespie[7] give six to nine months as the average duration of the illness, and Hoch and MacCurdy[6] a little longer. It may be shorter, and is often longer. The prognosis is worse if agitation, delusions, and stupor are pronounced and persistent, and is largely due to the difficulty of keeping the patient sufficiently nourished.

Inadequate emotional reaction, constant peevishness, narrowing of the mental horizon, auto-erotic behaviour, aimless wandering with stereotyped complaints and ridiculous hypochondriacal delusions, may appear for short periods in benign cases, but according to Hoch and MacCurdy, if persistent, are of bad omen.

The prognosis in chronic paranoid states is grave, but in cases of alcoholic and confusional psychoses recovery will occur if the toxic cause can be eliminated.

With dementia paralytica and other neurosyphilitic disorders the outlook, with treatment, is the same as in non-involutional periods of life.

Whatever the mental illness may be, if it is complicated by cerebral arterio-sclerosis, the prognosis is worse.

TREATMENT.

Prophylaxis.

Since poor health, either mental or physical, seems definitely to aggravate the psycho-physiological disturbance of the climacteric, women who are approaching this period of life should be protected as far as is possible from anxiety, and their general bodily hygiene kept at as high a level as possible. At the same time, the physician should be careful to dispel dreads of illness that are so often in their minds, and help them to realize that "the change" is a normal process, which is safely endured by the majority of women without much discomfort.

Glandular Therapy.

The climacteric is an endocrine reaction to deprivation of ovarian hormones. The rational treatment of those symptoms which are due to endocrinal insufficiency should therefore include active preparations of the glands which are functionally deficient. Up to the present, however, this ideal has been only partially fulfilled, because of the want of reliable standardized preparations, except in the case of thyroid. The drug market is flooded with substances which, on trial, give the most inconstant results, or none at all. Nevertheless, ovarian preparations, such as those of the corpus luteum, and the dry extract of the gland, are beneficial, especially for flushing and other vasomotor disorders. Maranon[1] considers that they are also of great help in reducing emotional instability, and uses them, along with other measures, in the treatment of psychoneuroses and involutional melancholia.

The dose advised by manufacturers is often too small, and because of the variable efficacy of the different preparations the adequate dose in each case is a matter for experiment.

Ovarian grafts have proved to be unsatisfactory, chiefly, perhaps, because of their rapid absorption.

Thyroid is invaluable when there are signs of myxoedema, but it is often used indiscriminately with harmful results. The presence of even mild hyperthyroidal symptoms, such as excitability, tachycardia, flushing, and loss of weight, is a definite contraindication, and Maranon's rule that it should not be given if the basal metabolic rate is higher than +20, or the pulse rate is consistently over 100, is sound. There is no special treatment for hyperthyroidal states during the change of life, except in so far as ovarian preparations may be considered advisable. Rest, bromides, belladonna, quinine hydrobromide, and so on, are to be used as in medical treatment of hyperthyroidism in younger people.

Pituitary and suprarenal preparations are sometimes employed, apparently with benefit; but I have no personal knowledge of their effects in the climacteric.

Psychotherapy.

In dealing with the minor anxiety states that may complicate the climacteric, psychotherapy on common-sense lines is unquestionably beneficial, because it helps the patient to understand and overcome many of her fears, and so get rid of other attendant symptoms. At the same time, I am convinced that deep mental analysis, by which attempts are made to delve into unconscious processes, is not only unwarranted, but actually dangerous. Believing as I do that the essential mental changes, fear and depression, are the emotional counterpart of endocrine upset, especially overaction of the thyroid, I would assert that it is as unreasonable to hope to relieve these symptoms at the climacteric by psycho-analysis as it would be in a patient suffering from similar complaints with exophthalmic goitre. The danger is more acutely realized if the view is accepted that many of the apparent psychoneuroses of the climacteric are really mild states of involutional melancholia. As can well be understood, psychotherapy yields most fruitful results in cases of neurosis brought on more by fear of the change of life than when it is an abnormal psychological counterpart of endocrinal imbalance.

Treatment of Psychoses.

What has just been said of psychological treatment applies all the more to the psychoses occurring at the climacteric. Depressed psychotic patients are often, but not always, helped by being allowed to talk freely about their anxieties and dreads, but the depth of the psychological disturbance prevents them from accepting reassurance. Apart from general care and attention to adequate nourishment, sleep, and regulation of the bowels, much cannot be done, unless, in involutional melancholics, ovarian preparations are found to be beneficial. The danger of suicide in states of depression has always to be kept in mind, particularly in milder cases. Usually psychotics are better managed in special homes, away from their relatives—whether under certificate or not depends upon the circumstances in each case.

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IRRADIATION AND THE LEUKAEMIAS.

AN INDEX TO MORE SUCCESSFUL TREATMENT.

BY

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TREATMENT of the leukaemias by deep ray therapy has several distinct advantages over the older methods of irradiation.[1] The chief of these are:

1. The danger of dermatitis is reduced to a minimum.
2. After the preliminary stay in hospital the patient can usually return to work, and need only occasionally report for examination or a short treatment, the interval in some cases being many months.
3. Patients will occasionally still respond well to deep therapy when further reduction of the white count is found to be impracticable by ordinary *x* rays.

Dosage Control.

In the past, dosage control has largely depended upon the rise and fall of the actual white cell count in the blood, but this was often found to be misleading, since it did not explain why in some cases the effect of irradiation was beneficial from the start, while in others, with more or less identical blood counts, and subjected to exactly the same dosage, there was marked constitutional reaction, and occasionally severe delayed effects with infective complications.

The real need, therefore, has been for some more reliable guide to dosage control. With this end in view we have during the last eighteen months attempted to devise and utilize some simple and safe haematological test which would give the desired information.

In a previous note[2] we described our earlier results when directly estimating the phagocytic power of leucocytes in leukaemic patients; in the present note it is our object to indicate, from the results of controlling in this way the treatment of sixteen cases of leukaemia, the assistance which we believe can be derived from estimating the number of actively phagocytic leucocytes in the blood as compared with the total white cell count.

The Phagocytic Test.

The technique of the test in its simplest form has been described in *Guy's Hospital Reports*,[3] but it is clear that, instead of observing the phagocytosis of washed staphylococci as adopted in our experiments, any suitable particulate material may be used, provided conditions are carefully standardized. If it is considered preferable to concentrate the leucocytes, this may be done as in the familiar opsonic index technique, or by Ponder's[4] method of causing the cells to collect on, and adhere to, a clean glass slide. Whichever technique is preferred, we would emphasize that the point to be determined before the patient is irradiated is the number of white cells per volume of the blood, which have, when in contact with his own serum, a normal fully effective phagocytic power.

By making this estimation at the start, and at intervals during treatment, it seems possible to obtain direct evidence in answer to the following questions:

1. Is irradiation likely to produce undue reaction, clinically or haematologically?
2. When treatment is once started, how long, and how strongly, may it be continued?
3. What is the prospect of a good response and return to a more normal blood picture?
4. When should irradiation be repeated?

Results of Application of Test.

We have recorded our results, not as in the opsonic index, in which the average number of organisms per leucocyte is recorded, but as the percentage of cells which contain more than twenty bacteria, between twenty and ten bacteria, less than ten bacteria, and none at all. In a normal person at least 85 per cent. of the polymorphs are found to contain more than twenty cocci, and extremely few are non-phagocytic. For simplicity, only the percentages of leucocytes falling in the strongly phagocytic group will be referred to in the following summary, because in practice we have found that it is necessary to consider only the percentage of polymorphs which are at any particular time phagocytically normal.

In all our cases the myeloblasts and myelocytes have been entirely non-phagocytic, and most of the immature leucocytes have been markedly deficient in this respect. We have found in each case that the number of actively phagocytic cells is lower in the haematologically more severe cases, in agreement with the generally accepted dictum that the severity of a case of leukaemia is to be judged by the percentage of immature cells present, rather than the actual increase in the total white count. As Piney[5] has pointed out, many cases of splenomedullary leukaemia contain many times the normal number of normal polymorphs, and the results of the phagocytic test fully bear this out. In early cases, with very high polymorph counts, phagocytosis may be very active, but as the disease progresses the percentage of phagocytes slowly falls.

It will be generally agreed that, during irradiation of leukaemias, the most lasting results, and the most rapid initial fall, in the total white count are obtained in those cases in which the percentage of frankly immature cells is relatively low. Disappointing results are most frequently associated with the more advanced and myeloblastic cases. Between these extremes many intermediate cases occur in which, from clinical and haematological considerations, it is most difficult to forecast the response to irradiation treatment. In these we find the phagocytic test definitely helpful. The higher the percentage of actively phagocytic neutrophils present at the outset of, and during, irradiation, the more quickly does the blood picture improve and the spleen decrease in size, and the less likely is reaction to ensue.

Thus in a series of ten patients with splenomedullary leukaemia, all of whom responded extremely well, suffered no significant reaction, and are all following their normal occupation at the present time, the average total white cell count at the start was 208,000 per c.mm., of which 82,500 were actively phagocytic; six to nine months later the average total white count was 14,500 per c.mm., of which 7,200 were actively phagocytic. Two cases of lymphatic leukaemia, similarly tested, gave initial counts of 45,000 white cells per c.mm. (12,000 phagocytes) and 70,000 white cells per c.mm. (14,000 phagocytes) respectively; four to six months later the corresponding white counts were 25,000 per c.mm. (6,000 phagocytes) and 16,000 per c.mm (4,400 phagocytes). It will be noted that at no time did the total phagocytic count in these cases fall to or below that met with in a normal blood—namely, about 4,000 per c.mm. It seems that during, and for some time after, irradiation a good supply of fixed and circulating phagocytes is necessary for satisfactory resolution of the tissue zones damaged by the rays, and the phagocytic test appears to be a satisfactory method of estimating this supply.

Description of Typical Cases.

If we now turn to an actual summary of the first three cases of leukaemia given below, which have shown marked constitutional reaction and responded badly to deep therapy treatment, they are seen to have a relatively low phagocytic power. Case III illustrates how successful treatment of this type of case may be achieved by the use of relatively small doses of rays, and Case IV shows how the phagocytic test may give guidance as to the possibility of successful irradiation, in spite of the patient's general condition being extremely bad.

CASE I.

A woman, aged 50. Splenomedullary type. On September 30th, 1929, haemoglobin 51 per cent. Total white count 13,200 per c.mm. (polymorphs 25 per cent., myelocytes 8.5 per cent., and myeloblasts 0.5 per cent.). Total active phagocytes only 490 per c.mm. After two irradiations of spleen: white count 12,800 per c.mm., with a total phagocyte count of only 350 per c.mm. Very marked reaction, vomiting, highly toxic state, and marked pyrexia—maximum 104.5° F. No reduction in size of spleen. Nuclein injections given. Temperature slowly fell, and phagocytes rose to 550. No improvement in blood count.

CASE II.

A man, aged 53. Splenomedullary. Total white count 120,000 per c.mm. At first (April 18th, 1927) good response to deep therapy; spleen reduced; gain in weight; count fell to 30,000 per c.mm. By September 3rd, 1928, white count again rose to 105,000 per c.mm., and, in spite of further irradiation, was still 164,000 on February 20th, 1929. No reaction occurred in 1928 during occasional irradiation, but slight fall of white count recorded after each irradiation. At the beginning of 1929 a steady fall of phagocytes began, until, on November 12th, there were less than 1,000 phagocytes per c.mm., and a total white count of 200,000 per c.mm. (myelocytes 40 per cent., polymorphs 32 per cent., myeloblasts 0.5 per cent.). Spleen very large. The patient at this point became markedly intolerant to deep therapy, and only medical treatment was possible subsequently. He died early in 1930.

CASE III.

A man, aged 36, with typical splenomedullary leukaemia, was first seen on July 8th, 1929. Total white count 115,000 per c.mm. (myelocytes 30 per cent., polymorphs 42 per cent., nearly all phagocytic). Full doses deep therapy. White count fell to 8,500 per c.mm., spleen much reduced (September 16th). Three months later white count again rising, and, in spite of occasional irradiation, count on March 29th, 1930, was 170,000; spleen very large, marked oedema of legs. Phagocytes now only 4,000 per c.mm., compared with about 40,000 when first seen. Subsequent irradiation produced very marked constitutional reaction, vomiting, and pyrexia. A moderate fall resulted in the white count, but this immediately rose again to 120,000. Evidently response to deep therapy was beginning to fail, but by using smaller doses of deep therapy—one-quarter usual size—it has been possible up to the time of writing to avoid serious reaction and to prevent the white count from rising far above 100,000, but it is impossible to bring the count down as before.

CASE IV.

M. H., aged 44. Typical splenomedullary case. Total white count 400,000 per c.mm. (myelocytes 42 per cent., polymorphs 30 per cent.) on June 14th, 1930. Marked oedema and ascites, much loss of weight, complete prostration. Before admission splenic irradiation from Coolidge tube had produced reaction and some burns, so discontinued. When admitted, total phagocytes 90,000 per c.mm. Therefore, in spite of previous reactions, it was decided to give deep therapy in full doses. No reaction followed. On July 12th patient walking, no oedema or ascites, spleen much reduced; white count total 100,000 per c.mm., of which 60,000 were phagocytic. Patient is still quite tolerant of deep therapy, and white count is remaining below 100,000. This is an example of relatively high phagocytic power as indicating the possibility of full irradiation, in spite of extremely poor initial general condition.

Commentary.

From these cases, taken as typical of the many now treated, we think it may reasonably be suggested that determination of the number of active phagocytes present at any given time provides definite indications as to the dosage and the prognosis in general.

In the past it was customary during irradiation simply to guard against the development of a leucopenia. The phagocytic test appears to be capable of providing a definitely earlier warning. The total number of active phagocytes in a normal blood tested by our technique is about 4,000 per c.mm., and, since adopting the rule that cases, leukaemic and others, should be irradiated very lightly, or not at all if their blood contained less than 2,000 phagocytes per c.mm., no severe reactions of any kind have been encountered. It is noteworthy that at the time this investigation was started five other patients were available for blood examination who were markedly intolerant to deep therapy. Three responded by marked constitutional reaction; one had developed broncho-pneumonia, and one streptococcal skin lesions. In each case the number of normally active phagocytes in the blood was found to be 1,000 per c.mm. or less.

In selecting cases for treatment, observation of a good phagocytic power may allow one to discount other factors, such as poor general condition or septic complications, which might otherwise cause hesitation in applying vigorous irradiation.

Extension of Method.

In conclusion, it may be added that, in practice, application of this method of dosage control has not been limited to the leukaemias. Since October, 1929, all cases of diffuse glandular enlargement, neoplasm, etc., for which deep therapy treatment was considered likely to be of benefit but where the general condition was not good, have been tested in this way. By setting the standards described above it has been found possible to reduce constitutional reaction to a minimum, and to irradiate successfully several cases which from general considerations might have been thought unlikely to tolerate the rays.

Summary.

1. The importance of an adequate supply of active phagocytes in the blood of a patient undergoing deep *x*-ray treatment is emphasized.

2. In leukaemias the higher the percentage of active phagocytes the better the prognosis, and the more ready their response to irradiation.

3. It is suggested that the number of active phagocytes in the blood of a patient undergoing deep *x*-ray treatment should not be allowed to fall below 2,000 per c.mm.

Our thanks are due to the honorary visiting staff of Guy's Hospital for their kindness and help in permitting and facilitating the repeated examination of the various patients under observation, and especially to Dr. A. F. Hurst, Dr. E. P. Poulton, Dr. N. Mutch, Dr. J. A. Ryle, and Dr. A. H. Douthwaite, under whose care the patients referred to were admitted.

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TREATMENT OF OCULAR DISEASES WITH MERCUROCHROME.

BY

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FEW medical men seem to realize what a useful drug we have in mercurochrome for certain ocular diseases. It is no new drug, having been used in Bristol for the last four years, so that a vast number of cases have been treated with it. My attention was first drawn to it by the fact that my surgical colleagues had proved it to be a useful antiseptic in bladder cases, and had found it practically non-irritating. In our hands, in the treatment of certain eye diseases, it has proved to be a very powerful antiseptic, and the irritation caused by it in the majority of cases is negligible. Its one disadvantage is its red colour, as this will stain the skin for a few days, but this can be obviated if, immediately after its application to the eye, any remaining on the skin is wiped off with moist cotton-wool. It is used in the form of drops made of a 1 per cent. solution, as an ointment of the same strength, or as a paint of a 1 or 2 per cent. strength.

Uses in Conjunctivitis.

The drug is of service in all types, and by far the best method of treatment is to paint both lids at once with a 1 or 2 per cent. solution, depending on the severity of the attack. In a case seen early, this treatment is invaluable for cutting short the duration of the attack, and there is no doubt that the instillation of drops, apart from the painting of the lids, loses much valuable time. For some time it has been my practice to paint these cases directly they come to me, and the results have been superior to those of any other type of treatment. The best way to apply the solution as a paint is to use a fine probe, such as that employed for the nasal duct, and, after winding a very thin piece of cotton-wool round one end, dip it into a receptacle holding perhaps ten drops of the solution; this prevents undue saturation of the cotton-wool, and if the painting is done carefully none need get on to the patient's lids. Apart from the acute cases of conjunctivitis, painting with a 2 per cent. mercurochrome is invaluable in those chronic cases in which there is a good deal of velvety thickening of the conjunctiva. This is the type of case that is so often beneficially treated with silver nitrate, or one of the silver compounds, but we have found mercurochrome superior to silver in that its irritation is considerably less (therefore it can be applied at more frequent intervals), that it cannot damage the cornea, and that there is no danger of staining the conjunctiva even if the drug be used over a very long period. It is our practice to treat this type of case with

two paintings a week, and, if this does not suffice, 1 per cent. mercurochrome drops are given to the patient to be instilled twice a day, but of late we have come to rely more and more on the painting and to discard the drops where possible, as they are certainly "messy" when used by any patient who is not careful. We believe that every type of conjunctivitis is benefited by so painting the conjunctiva; for instance, two cases of severe Parinaud's conjunctivitis, with involvement of the cervical glands, cleared up, without any surgical intervention to the glands by this treatment. A case of tuberculosis of the conjunctiva did excellently with this treatment combined with ultra-violet light. For the last four years the maternity department of the Bristol Royal Infirmary has issued a 1 per cent. solution of mercurochrome instead of the usual silver nitrate for instillation into the eyes of newborn babies. There has been a definite decrease in the cases of ophthalmia neonatorum, and now we never see those many red eyes that can be produced by silver nitrate. The only exception to our routine is if the parents are known to be infected with gonorrhœa, when silver nitrate is still used. All cases of ophthalmia neonatorum are now treated in the initial stages with mercurochrome drops; this drug, being non-irritating, can be used without fear of damage even if there be intense chemosis and swelling of the lids. In a case progressing favourably, mercurochrome painting of the lids in the later stages is also very beneficial, but in the more severe type of case one should still rely on silver nitrate in preference to mercurochrome.

Corneal Affections.

Ulcers of the cornea if seen early can, with benefit, be painted with mercurochrome, but too much reliance must not be placed on this drug to the exclusion of more energetic types of treatment. Large phlyctenulae, or the small miliary variety, at the margin of the cornea often improve considerably with mercurochrome paint. Following serious or trivial injuries to the cornea, a drop of mercurochrome into the conjunctival sac is as good an antiseptic as any.

Blepharitis.

This can be considerably benefited by the painting of the lids with a 2 per cent. solution. Before applying it all the scabs should, where possible, be removed. We use for this purpose a solution of warm sodium bicarbonate solution, applied gently with cotton-wool, so that the underlying tissues are not damaged. The edges of the lids are then thoroughly painted. The results, as compared with similar treatment with such solutions of brilliant green and iodine, show mercurochrome to be equally good, and, being so easy to apply and non-irritating to the conjunctiva, we now only use it for this condition. I have said that mercurochrome is non-irritating, but there is apparently an exceptionally rare idiosynerasy to the drug. I have seen the occurrence only twice over a period of four years. In one, a patient suffered from oedematous lids, face, and, later, chest and body. He was seen by a dermatologist, who considered mercurochrome to be the cause. He rapidly recovered on cessation of the drug. The other patient had a considerable swelling of both eyelids of the treated eye, with a thin serous discharge, a condition very similar to atropine irritation. This cleared up rapidly on giving up the mercurochrome.

Mercurochrome in Ophthalmic Surgery.

As a preliminary to all eye operations, a 1 per cent. solution of mercurochrome is painted over the skin of eyelids and face after the part has been thoroughly cleansed in the usual way. Bacteriological investigations have shown this method to be as efficacious as painting with iodine, and no skin irritation is produced as with iodine, this fact being of some importance in eye surgery as the patient is less likely to interfere with the dressings. Before operations the conjunctiva is sterilized by instilling 1 per cent. drops of mercurochrome two or three times on the day before the operation, and once in the hour before the operation.

With the experience of mercurochrome over the period mentioned above, we feel justified in asserting that it is really of considerable value in ophthalmology.

RECTAL PARALDEHYDE AS A PRELIMINARY TO TONSILLECTOMY IN CHILDREN.

BY

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To remove tonsils and adenoids without anaesthesia is by no means a difficult task, as a visit to any of the Continental clinics will prove. Such a procedure has certain advantages, for it obviates all risks associated with the administration of anaesthesia, and also avoids the possibility of the unconscious patient being suffocated with his own blood. Surgeons in this country are thankful for anaesthetics, yet even with anaesthesia the removal of tonsils is no mean ordeal to a child. This ordeal can be minimized considerably by a procedure which aims at "stealing" the tonsils rather than forcibly removing them. Provided no complications supervene, the after-effects of tonsillectomy in children are so slight that they seem to suffer more from fear in the pre-operative stage than from discomfort after the operation. These pre-operative disturbances can effectively be avoided by preliminary medication which makes the child unconscious by the time he is brought to the theatre, and he is thus saved from the various stages that lead to being "put under"—a period of fear and struggle, and not differing very much from that extra minute during which Continental surgeons complete the operation without anaesthesia. The preliminary medication employed is the rectal administration of paraldehyde, a drug which induces a condition very similar to deep sleep. Given in the form of an enema whilst the child is in bed, it can be administered without any struggle, and without any nervous apprehension on the part of the little patient. This preliminary medication has the further advantage that it necessitates very little anaesthetic, and, furthermore, that the return to consciousness is considerably delayed, although the anaesthesia itself is light. By the time the child has fully recovered all the unpleasant after-effects of the anaesthetic have worn off, and many children are under the impression that no operation has taken place.

ROUTINE OF PARALDEHYDE ADMINISTRATION.

The child is admitted the night before operation. A soap and water enema is administered in the morning. An hour later the bowel is washed out, repeatedly if necessary, until the fluid returns clear. The patient is then ready for the administration of paraldehyde per rectum. This, however, should only be given one hour before operation. No other medication is necessary.

With regard to the administration of the drug, the following are important points:

Dosage.—The best results are obtained by the administration of one drachm of paraldehyde per stone body weight. This ensures the child falling asleep rapidly, in many cases before the administration of the drug is completed. The sleep is sufficiently deep for the child not to waken up when carried to the theatre an hour later, and it is quiet and restful.

Vehicle.—The paraldehyde is administered dissolved in stock solution of normal saline, neither warmed nor cooled. One and a half ounces of saline per drachm of paraldehyde should be used.

Method of Rectal Administration.—The paraldehyde solution should not be warmed before administration. The cold solution must be run in slowly, otherwise it will be returned. The stages in the administration are: (1) Pass the catheter, well lubricated, into the rectum. Then lightly plug anal margin with cotton-wool. (2) Fill the funnel and tubing with water, expelling all air, and clip distal end of tubing. (3) Connect to the catheter, release the clip, and run in the solution very slowly. This procedure should take at least ten minutes. The paraldehyde solution should be vigorously shaken before refilling the funnel, to ensure solution. (4) When all the solution has been run into the rectum the catheter is removed, leaving the wool packing in place. A pad of wool is placed on the perineum, the nates are strapped together, and the child is made to lie on his back with his legs together. Sleep always supervenes within half an hour.

A child thus prepared needs little anaesthetic, though no child is sufficiently comatose to be able to dispense with

the anaesthetic altogether. Owing to the synergic action of drugs a small quantity of anaesthetic produces very disproportionate effects. Open ether is safe, and the best anaesthetic. Very little is required (about one ounce) to make the child ready for the operation; the anaesthetic is taken without much struggle.

All children wake up whilst they are having cold douching after the operation, but though conscious they do not remember afterwards what has happened. They fall asleep as soon as they are put to bed. This sleep is prolonged and restful; it lasts between eight and sixteen hours; they wake up quite refreshed.

DIFFICULTIES AND DANGERS.

Pre-operative Preparation.—It is possible that the pre-operative preparation need not be so strict in the complete washing out of the rectum preliminary to the administration of the paraldehyde. Experience may prove castor oil, the night before, sufficient preparatory treatment; but, in view of the fact that paraldehyde may act as an irritant of the rectum, and that a loaded colon would interfere with the absorption of the drugs, it was deemed advisable to have the pre-operative treatment as thorough as possible.

Dosage.—A dose of one drachm of paraldehyde per stone body weight was employed in the last 572 cases. In a first series of 82 cases only half a drachm per stone weight was used. This had definite disadvantages, for not only did it fail to induce satisfactory hypnosis, but it also seemed to act as an exciting agent. The sleep induced was light; the child was irritable, easily wakened, and would waken up when taken to the theatre. The administration of the anaesthetic would provoke a struggle, and after operation there would follow an exceedingly restless sleep lasting for four to six hours. With such a dose there seemed to be no effect on the pupils; respiration was unaffected, but blood pressure was raised. A dose of three-quarters of a drachm per stone weight was tried out in a second series of 146 cases. The results obtained were a great improvement on those obtained with the smaller dose. The sleep, though deeper, was not sufficiently deep to prevent some of the children waking up when taken to the theatre. Struggling during the administration of anaesthesia was never very marked. The sleep after operation lasted for four to eight hours, but, as with the smaller dose, there was a distinct tendency towards restlessness. With this dosage the pupils tend to become contracted, and the blood pressure is raised. A dose of a drachm per stone body weight has no dangers, as shown by the last 572 cases, and has definite advantages. The sleep is deep; there is no restlessness before or after the operation, and hardly any struggling during the administration of the anaesthetic. With the full dose sleep lasts for eight to sixteen hours; the pupils are contracted; respiration is quiet; there is, however, a fall of blood pressure two or three hours after the operation.

Vehicle.—The paraldehyde should be dissolved in normal saline neither heated nor cooled, and this solution is to be run into the rectum. The solubility of paraldehyde is 1 in 10 at 0° C.; it is less at higher temperatures, and over blood heat the paraldehyde tends to evaporate. Hutchison reports a case of considerable sloughing of the rectal mucosa owing to the administration of half an ounce of paraldehyde. But he injected it in a highly concentrated form (the pure drug) "along with three or four times its volume of water."

Difficulties in the Rectal Administration.—An unsuccessful rectal administration leads to the evacuation of the paraldehyde and failure of the attempted medication. Extreme slowness in the running in of the solution is an essential condition for success. Retention is further aided by strapping the nates together, in addition to putting a pad over the perineum. It is advisable to have a nurse who has had some experience in the administration of solutions per rectum.

Anaesthesia.—As already pointed out, the quantity of anaesthetic is small, and the preliminary medication ensures a maximum effect considering the amount of the anaesthetic employed. Open ether has been found safe; it has also the advantage of raising the blood pressure, thus counteracting the fall that the full dose of paraldehyde produces. Ethyl chloride is also safe, though a needlessly large dose may be administered should the child struggle. Chloroform would, however, seem to be highly dangerous. On one occasion, when ten children were being operated upon, all of them were given chloroform on top of the full dose of paraldehyde. In two cases there was severe collapse, the children turning greyish in colour; the pulse was rapid and thready, and the breathing was shallow. Chloroform has not been tried again. With ether the anaesthesia need be very light. The combined effect of the paraldehyde and ether, though producing complete narcosis and anaesthesia, is sufficiently light for the reflexes to persist. It is undesirable and unnecessary to push ether to the stage of abolishing the reflexes.

Complications.—In this series of 800 cases there were no complications that could be ascribed to the paraldehyde. In one case there was some slight bleeding after the operation. No active interference was necessary apart from swabbing out the throat. In another case the administration of the paraldehyde was unsuccessful. The child was unconscious on the table, was vomiting, and was difficult to anaesthetize. There was no apparent reason for this failure, though it is worth noting that this child was one of the earlier cases, and had not received the full dose of paraldehyde. Paraldehyde has an offensive odour; this seems to be more troublesome to the attendants than to the patients.

DISADVANTAGES.

The advantages of preliminary medication are real enough; this is well illustrated by the attitude of the little patients. A child operated upon without preliminary medication fears and mistrusts the surgeon when he attempts to examine the throat after the operation; but children who have had paraldehyde show no such fear and mistrust. The majority readily open their mouths, and do not hinder the examination. Disadvantages, however, are none the less just as real and genuine. Preliminary medication implies considerable extra nursing, for not only are there extra duties before the operation, but more alertness is required from the nurse owing to the prolonged sleep of the children. There is also the disadvantage that the extra preparations throw some strain on the child: an enema, a wash-out, and rectal paraldehyde are rather trying to any patient. Finally, there is the disadvantage that the preparations imply in-patient treatment. While this is all for the good of the child, it does, unfortunately, present a serious problem at this time, when the accommodation for tonsillectomy cases is so woefully inadequate.

The observations recorded here were carried out at the Plaistow Children's Hospital and at the London Jewish Hospital. It is a pleasure to acknowledge my indebtedness to Mr. W. M. Mollison of Guy's Hospital for suggesting this work, and for his kindly interest and criticism.

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AMIDOPYRIN IN THE TREATMENT OF MEASLES.

BY

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SINCE 1924, when Loewenthal[1] published his paper on the value of amidopyrin in the treatment of measles, occasional short notes on this treatment have appeared in various foreign journals, but English writers have paid little attention to the use of this therapeutic agent. One of us (G. R.) tried the drug in a few cases of measles, but possibly on account of the fact that the cases were in a late stage of the disease the results did not appear sufficiently noteworthy to merit publication. In October, 1929, Hoyne of

Chicago,[2] who has been using this drug for a number of years, reported very favourably on its value in measles. In June of the present year, J. I. Collier[3] recorded the results of its use in general practice during 1929, and since the appearance of his article several practitioners have contributed letters on the subject to the correspondence columns of the *British Medical Journal*. The consensus of opinion has been entirely in favour of the use of amidopyrin, and, indeed, some rather extravagant claims, based on the experience of a small number of cases, have been made for this method of treatment. In order to secure a more thorough test of the method, arrangements were made for the treatment to be carried out on a series of cases in hospital, where the facilities for observation and treatment are better than those existing in general practice. The present paper is a survey of the results in 150 cases treated during the past winter by the staff of the Eastern Hospital. At the outset an endeavour was made to secure early cases, our intention being to make a comparison with a corresponding number of untreated cases, but it was soon found that the number of patients admitted in an early stage of the disease was too small to allow of any satisfactory investigation. We therefore decided to treat as many patients as were available, and our series consists of unselected cases. The dosage adopted was 1 grain for each year of age, with a maximum of 5 grains. The drug was first given in the form of pyramidon crystals, but in the simultaneous treatment of a large number of patients, an aqueous solution containing 1 grain to the drachm was found to be more convenient, and less likely to give rise to nausea. Owing to its somewhat bitter taste, a few of our early patients who received the drug in powder form experienced slight nausea, but the liquid form was well tolerated, and no idiosyncrasy or any harmful effect was noted in any of the cases. The appropriate dose was administered four-hourly day and night until the temperature had settled. The treatment is comparatively cheap, the cost amounting to only a few pence per patient.

Results of Treatment.

The results of the treatment were very encouraging, but the type of measles prevalent in London during the winter 1929–30 was milder than usual, and we are therefore chary of making claims which further investigation might show to be inapplicable to a more severe type of the disease. The best results were achieved in the earlier cases, but even in the later stages the treatment appeared to benefit a certain number of patients. Our experience agreed with that of Hoyne in the respect that the tendency to bronchopneumonia was lessened and complications were fewer. Some patients who were already suffering from bronchopneumonia on admission to hospital did well, but the drug did not seem to exert any influence on measles laryngitis or measles enteritis. In view of these observations, we could not substantiate the claim that the drug exercises a "specific" action. In one instance "measles croup" developed in a patient whose treatment was initiated in the prodromal stage, and though this case made very satisfactory progress the occurrence of a serious early complication was unlooked for, despite a subsequent good result. From a reference by Hoyne to the "customary salicylates," one would gather that treatment by drugs, presumably administered for their antipyretic effect, is the usual practice in the treatment of measles in America. The efficacy of amidopyrin as an antipyretic is well recognized, and for this reason it is not surprising to find that Hoyne regards it as an advance on previous medicaments. Our own experience amply confirms this antipyretic effect, which was exhibited in almost every case.

In the majority of instances the temperature dropped to normal within twenty-four hours of the administration of the drug, and, though the precise therapeutic effect of a mere lowering of temperature may be a debatable point, a decided improvement in the patient's general condition accompanied the decline of the pyrexia. In a number of cases in which complications had supervened before treatment was initiated pyrexia continued, though on a lower level. Some writers have claimed that the use of amidopyrin in the prodromal stage will frequently exercise an abortive effect on the disease, and in one of our cases this effect certainly followed the giving of the drug; but we are well aware of the fact that a similar result in an untreated case would be by no means a phenomenal happening.

Our case was that of a boy who was admitted to hospital with pyrexia, coryza, and the usual appearance of a measles patient in the prodromal stage. Numerous Koplik's spots were visible, but he had no exanthem. Treatment was commenced on the afternoon of the day of admission, and next morning the boy was perfectly well. A few macules were then seen on the trunk, but no further symptoms appeared, and the rudimentary eruption only lasted for a few hours, during which time the patient appeared to be in excellent health. On the other hand, the case has already been referred to in which "measles croup" occurred in the prodromal stage of an attack for which treatment had already been commenced. The typical eruption appeared in this case, and was followed by quite marked staining. In many instances where the treatment was begun during the eruptive stage, the duration of the rash appeared to be shortened, but in other cases the eruption followed its usual course, even though there was considerable amelioration of the general condition. The treatment cannot therefore be said to have any constant effect on the measles exanthem. Two tables are appended, in which we have briefly summarized our results, our criteria for the allocation of cases to the different categories being severity of disease, duration of pyrexia and other symptoms, presence or absence of complications, and length of stay in hospital. The omission of statistics referring solely to complications will be noted, but we are of opinion that, as a number of our cases were of a comparatively benign type, the inclusion of these figures without the records of a parallel series of untreated cases would be unduly flattering to the treatment. In a subsequent communication, dealing with our experience of an extended series of cases, we hope to be able to furnish these and other details.

TABLE I.—*Results according to Age Groups.*

Age in Years.	No. of Cases Treated.	Good Result. A.*	Good Result. B.†	No Apparent Benefit.	Died.
1 (and under)	34	15	6	10	3
2	27	12	8	6	1
3	29	10	15	4	0
4	34	14	18	2	0
5	16	9	6	1	0
6 to 9	10	5	3	2	0
Totals	150	65	55	25	4

* Cases in which the good result was apparently attributable to amidopyrin.

† Cases in which a good result followed treatment, but in which such factors as age, mildness of disease, etc., may have largely contributed to the favourable progress.

TABLE II.—*Results according to Stage when Treatment was Initiated.*

Stage.	No. of Cases.	Good Result. A.	Good Result. B.	No Apparent Benefit.	Died.
Prodromal	3	2	0	0	1
First day rash ...	46	27	13	4	2
Second ,, ...	63	26	28	8	1
Third ,, ...	20	7	8	5	0
Fourth day and later	18	3	7	8	0
Totals	150	65	56	25	4

The case of "measles croup" already referred to is not included. The result was good, but symptoms of measles first developed during convalescence from scarlet fever, which may have influenced the course of treatment.

Comment.

The four deaths were due to broncho-pneumonia, and in each of the cases a coexisting enteritis was a contributory factor. Three of the cases were admitted on the same day

from an institution in South-East London. These patients were in an early stage of measles, but enteritis was already present in all three instances. It is interesting to note that another case, previously admitted from the same institution, was also found to be suffering from enteritis, though no definite evidence of measles could be found in this patient. It is therefore possible that in this small group the enteritis was a precursor and not a complication of measles.

As might be expected, the best results were obtained in the earlier stages of the disease. In the later stages a few cases showed some very encouraging results, so that the treatment is not devoid of value even after some days have elapsed before the case comes under observation. Infants and very young subjects furnished the largest number of cases which derived no apparent benefit from treatment, and we have had under consideration the question of the advisability of increasing the dosage in these cases.

Conclusions.

1. Amidopyrin is a valuable adjuvant in the treatment of measles.
2. Its action is chiefly antipyretic, but it appears to exercise some influence on the other symptoms of the disease.
3. Its value is greatest when given in the earlier stages, and in some instances it appears to modify the attack, but even in the later stages its use may be followed by good results.
4. From the results in our series of cases we are not yet in a position to give a definite pronouncement on the claim, made by certain writers, that the drug is a "specific" for measles.
5. The treatment is comparatively inexpensive, and very simple in its method of administration. In the dosage used by us it seems to be devoid of deleterious effects.
6. The use of amidopyrin merits further investigation over an extended series of cases.

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AMIDOPYRIN IN THE TREATMENT OF MEASLES.

BY

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THE favourable reports in the *British Medical Journal* on the use of amidopyrin in measles decided me that it must be tried in an epidemic which happened to be going on at the time. It was a good opportunity for a test, seeing that all the patients were of one type and were nursed in similar circumstances. The epidemic, too, was half over, and the comparison between treated and untreated cases was made easy. This seems important, seeing that the severity of different epidemics varies within wide limits.

The patients were all boys at school, from 12½ to 16½ years of age. Each was nursed in a separate room with nurses who kept regular charts. The disease was of a mild type, and the weather was warm and sunny. Partly on this account probably, and partly because the general health was good, with an almost complete absence of catarrhal affections in the community, complications were few and convalescence was rapid. In all, 120 patients were treated on ordinary lines, and nine were given amidopyrin (pyramidon).

Cases Treated on Ordinary Lines.

The course of the disease in these 120 cases was similar in all during the prodromal stage. None felt particularly ill, and almost all wanted to eat light solids. The respiratory symptoms were slight in comparison with most epidemics. There was remarkably little cough and hoarseness. The temperature rose to its height as the eruption appeared, and then fell abruptly to normal, the whole period of real discomfort lasting, as a rule, only twenty-four hours. Most patients were able to get up in a week, and to go away for sick leave in a fortnight after the rash appeared. In only four cases were there any marked signs of bronchial catarrh. Many had transient redness of the tympanic membrane, often without any pain or other symptoms referred to the ear. Two had definite otitis, needing myringotomy on both sides. Both were healed within ten days.

In this group the severity of the disease varied within wide limits. One boy, for example, reported sick only because of the rash on his face. He never felt ill. The rash was scanty, the temperature was 100.4° F. when he reported sick and was normal next day. At the opposite extreme was a boy who felt quite ill and reported sick four days before the rash appeared. Koplik's spots were present on the first day, three days before the rash. The rash and the injection of the palate were intense, and signs of broncho-pneumonia appeared two days after the eruption was at its height. Both tympanic membranes became congested, but resolved without myringotomy. The temperature was 104° at its highest, and it did not settle to normal for thirteen days. The average total duration of the fever was 4.07 days, and the average greatest height was 103.5°.

Cases Treated with Amidopyrin.

These nine patients each received 5 grains every four hours, beginning during the prodromal stage in three cases, and at the beginning of the eruption in six cases. The course of the disease was altogether different. The rash appeared more slowly, taking thirty-six to forty-eight hours to reach its height. The temperature rose as high as usual, but fell gradually and not abruptly, and the period of real discomfort was lengthened. This discomfort was increased in most cases by frequent vomiting. Complications were not prevented, for two patients had extensive bronchial catarrh and one of these had double otitis in addition, necessitating myringotomy on one side. Two had stomatitis and laryngitis so severe as to make feeding a trial and phonation impossible, complications unseen in the group treated on ordinary lines. The average total duration of the fever was 5.9 days, and the average greatest height was 103.5°.

There could be no doubt that these nine cases were more uncomfortable and did less well than the others, and this fact was so obvious to both doctors and nurses that it seemed unjustifiable to continue the administration of amidopyrin.

Summary.

During a school epidemic of measles, nine patients were treated with amidopyrin and 120 on ordinary lines.

The patients treated with amidopyrin were more uncomfortable than the others, their rashes took longer to mature, their fever was more prolonged, and the percentage of complications was higher.

TREATMENT OF VARICOSE ULCERS.*

BY

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BY way of introduction I would stress some general considerations before proceeding to the details of treatment and the results to be expected. These are the prevalence of varicose ulcer, apathy of the medical profession with regard to it, the economic aspect, intractability of the disease, and its etiology.

The prevalence of varicose ulcer is not fully appreciated because a very large number of sufferers seldom see a doctor. The reason for this is that both patient and doctor grow tired of ineffectual treatment and avoid each other. The patient either uses well-advertised remedies or is dealt with by the out-patient or district nurse. The cases will come out of hiding in large numbers if they are encouraged; as witness of this, I have treated and cured upwards of three hundred cases of indolent leg ulcer during the last two years.

* A paper read at a meeting of the Section of Surgery at the Annual Meeting of the British Medical Association, Winnipeg, 1930.

This disease falls between the two stools of surgery and dermatology, and remains there by the mutual consent of the two specialties. This lack of interest I prefer to regard as due to a feeling, on the part of surgeons, that the disease is not curable except in the early cases. Even the advent of the injection treatment has not altered things very much.

Women are the chief sufferers, and in their case it is hard to assess in terms of hard cash the cost of an ulcer to the individual. One can only imagine the sufferings of the mother of a family compelled to carry on in spite of endless pain and sleepless nights. Truly, it has been said, not only she, but the whole household, suffers from varicose ulcer. But when we come to the male it is not a difficult matter to take a piece of paper and write down, item by item, the cost of an ulcer throughout its duration. Most astonishing figures will result. I have one case of an ulcer which cost over £5,000 in loss of wages, pension, treatment, insurance benefit, hospital charges, etc. This patient had spent seven years of his life in hospital at one time and another. This is an exceptional case, of course, but ulcers of a cost of £1,000 are by no means rare.

Many have come to regard permanent cure in long-standing ulcers as impossible of achievement; no more eloquent proof of this could be found than the multiplicity of remedies that have been devised for its cure. In an hour and a half I discovered one hundred remedies in the Surgeon-General's Index; they ranged from playing a stream of hot air or other gas on the ulcer to dusting it with castor sugar. Cestan struck an amusing note when he said that the only cure was a private income of £400 a year, and unlimited rest.

An almost forgotten British genius, Thomas Baynton, surgeon of Bristol, at the time of the French Revolution wrote as follows: "This disease is due to the unfavourable situation of the parts which are placed at a remote distance from the fountains of life and heat, and are obliged to return the venous blood and lymph to the heart under peculiarly unfavourable and disadvantageous circumstances." A simple experiment proves his contention. A needle, connected to a glass tube eight feet long, is inserted into any varicose vein; the blood rises instantly to the level of the clavicles. The patient holds his breath; the blood rises to the level of the ears. If he now lifts a heavy weight in both hands, the upper level rises far above his head, and the venous pressure is even greater than the arterial. All the sixteen complications of varicose veins are the direct result of this venous pressure. There is no need to invoke a stubborn bacterial infection to account for the chronicity of varicose ulcer; it is purely a matter of hydraulics. It is sometimes said that the large indurated ulcer is not due to varicose veins; the veins are certainly there, nevertheless, but lie deep in callous oedema.

Rationale of the Treatment.

Put the hydraulics right and the ulcer will take care of itself; this is the gist of the method. The oedema is harmful and the varicose circulation useless, so they should be squeezed out of existence by an adequate and uniform compression.

Then comes the question of dressing the ulcer. It seems the rankest heresy to recommend that the discharge of an ulcer should not be allowed to escape, but in practice it is found that almost all ulcers, if hermetically sealed with sticking plaster, will heal better than when treated with any antiseptic or stimulating dressing known. Baynton first discovered this 150 years ago, but his method has been almost forgotten, as have possibly other good things in the wave of antisepsis following the discoveries of Pasteur and Lister. Maybe the antivirus of Besredka, or the bacteriophage of d'Herelle, is thus allowed to fulfil its curative mission unhindered by well-intentioned but injurious interference.

Technique of the Treatment.

1. *First Attendance.*—The highest visible varicose veins are injected with 5 per cent. sodium morrhuate; then, no matter how fetid and dirty the ulcer may be, the leg is firmly encased from foot to knee in a 3-inch spiral bandage of elastoplast adhesive. The zinc oxide and rubber adhesive is spread upon a domett base in this type of bandage; it is comfortable, lies smoothly on the leg, and is very rapidly applied. To prevent any tendency for the bandage to "creep," two 9-inch longitudinal splints of the same material are laid on the sides of the leg above the ankle, and the spiral is applied over these. The patient is then instructed to walk home. She will notice while doing so that the bandage, most uncomfortably tight at first, soon adjusts itself to the leg, and she experiences comfort which has been unknown to her for years. A very gratifying feature is the improvement in sleeping which results. The patient is also instructed to work, to seek for work, or to take exercise. Discharge will seep through the bandage, and should be washed off with soap and cold water. It is explained to the patient that a free discharge is beneficial.

2. *Interval between Attendances.*—The period before returning varies according to (1) the amount of oedema, (2) the size of the ulcer, and (3) the position of the ulcer. (1) Where the oedema is great the bandage becomes loose rapidly; it may have to be renewed within three days to keep pace with the expulsion of oedema. (2) When the ulcer is very large, the profuse discharge will at first necessitate renewal twice weekly of the bandage. Healing is so rapid that the intervals can soon be increased. (3) When the ulcer lies over the malleoli the movements of the ankle loosen the bandage, and more frequent renewals are required in these cases. The interval between the first two attendances, and also between the successive visits, varies from two days to two months, according to these three factors, the usual time being two weeks.

3. *Second Attendance.*—When the second attendance is made the patient removes the bandage. This is painless, because alopecia precedes ulceration in cases of varicose veins, and because the discharge has lifted the bandage from the surface of the ulcer; thus no damage is done to new epithelium or granulations, and there is no bleeding. At the routine inspection more varicose veins will be seen or felt, because of the reduction in the oedema, and these are injected. If the ulcer is large, skin grafting is performed. In order to keep the treatment ambulatory, the grafts are buried under the granulations as small inserts, or darned in the form of skin threads, or injected in the form of mince. The ulcer is then covered with adhesive in exactly the same manner as before, and the grafts "take" with monotonous regularity. The grafts are always autogenous, and are removed from the arm as a rule, the wound caused by their removal being carefully sutured. On this occasion, as on all others, the ulcer is measured by means of a squared celluloid transparency, and the area is plotted on a chart. This stimulates both the surgeon and the patient. The healing changes in the ulcer are noticed within a week, the raised edges are flattened out, the healthiest of granulations appear, and the leg rapidly resumes its original size and symmetry.

4. *Subsequent Supervision.*—When healing is complete the support is continued in a modified form by means of one of the ready impregnated Unna's bandages, many of which are on the market now. This support is kept up for three months, and then the patient is given the following instructions: (1) to report every three months so that any fresh veins may be injected; (2) if possible, to wear boots instead of shoes; (3) to cover any small abrasions of the leg with adhesive; and (4) if the ulcer is due to "white leg" an elastic support, such as the "Bourgeaurd," should be worn continuously.

Two illustrative cases will show the effects of treatment.

Case I.

A woman, aged 64, had been a sufferer from varicose veins for forty years, and from ulcer for twelve years. In spite of assiduous hospital attendance during those twelve years the ulcer had steadily increased to the size of 21 square inches. The leg was elephantoid, the ulcer lying more than half an inch below skin level. Under compression treatment there was complete relief from pain and insomnia, weight was gained, and the haemoglobin figure improved by 30 per cent. Seven weeks from the first attendance the ulcer was firmly healed, and the volume of the leg became 7 pints as compared with the original 10¼. Varicose veins, invisible at first, soon came to the surface, and were dealt

with by morrhuate injections. During the whole period of treatment the patient had complete freedom from the pain which for twelve years had made her life a misery.

CASE II.

A man, aged 52, developed typhoid fever complicated by femoral thrombosis thirty years ago in the Boer war. An ulcer appeared as soon as he got about. Since then this never healed, but slowly grew to encircle the leg and measure 31 square inches in area. His total hospitalization over the thirty years amounted to seven and a half years. Every treatment, including skin grafting, was tried; amputation had been repeatedly refused, and the pensions committee had awarded him a lifelong pension of £2 per week. A most conservative estimate of the cost of this ulcer to the patient and State gave a figure of over £5,000! With twenty-one weeks of the treatment outlined previously he was completely cured. During the whole period of treatment he followed the most unfavourable of occupations, that of a house painter, earning £4 to £5 per week. He stated that during the treatment he had less pain than at any time in the course of the disease. There were no varicose veins at all in this case, so the patient is now wearing an elastic support to prevent recurrence.

These two illustrative cases, by no means the most severe, are taken from a series of 324 cured patients (478 ulcers) with a total area of 1,480 square inches, or rather more than 10 square feet of ulcer surface. The average rate of healing was 1 square inch in 5.1 days. In two years I have only traced three patients who did not continue treatment, and only one who did not respond to it—a woman who died shortly after from an abdominal malignancy. Of these 324 patients no fewer than 33 had refused amputation at some time or other; it is thus seen that we can, with this method, retrieve some of these derelicts from what Mayo has described as the "surgical dust heap."

CHRONIC ULCER OF THE LEG TREATED BY THE METHOD OF DICKSON WRIGHT.

BY

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WE have thought it worth while to publish our first results in the treatment of chronic ulcer of the leg by this method. The number of ulcers having an area of more than five square centimetres bears a small proportion to the total number of ulcers treated. In nearly every case, however, the healing of the ulcer was a relatively minor episode in the restoration of comfortable function to the affected limb. We have only recently devised an apparatus for measuring the reduction in size of the swollen and brawny legs on which ulcers and chronic dermatitis occur, and so we are not in a position to produce numerical evidence of the improvement we have been able to obtain in what formed the bulk of our material. As regards the restoration of painless function, we can only say that our patients have been unanimous in their appreciation of what this treatment has done for them; the comfortable theory which we used to hold, in view of our failure to relieve—that such patients preferred to enjoy their disability—has been almost completely abandoned. There seems to be little doubt that the results previously obtained in out-patient work have always been inferior to those obtained by the individual doctor. Whenever we have discussed this method with our colleagues in general practice we have generally found the latter fairly well satisfied with their own results, and unwilling to regard our present results as worth the very little extra trouble that they involve.

It is, of course, probable that with rest in bed many of these ulcers would have healed, but, as already stated, by the Dickson Wright technique an important further advance is made in that the leg is reduced to its normal size, cured of its tendency to swell, and in many cases, we believe, secured from the possibility of further trouble. Moreover, with this method the patients are able, and are indeed encouraged, to go about their work during the whole of the treatment. Pain disappears during the first forty-eight hours; with treatment by rest in bed it is generally aggravated. Healing of the ulcer can practically be guaranteed, and the duration of treatment, for this part only of the cure, can accurately be calculated by the formula:

$$\frac{\text{Area of ulcer in square centimetres}}{5} + 3 = \text{time in weeks.}$$

As regards the cost of the treatment, one case may be quoted:

Attendance at out-patient department, including roll of lint, 4 oz. ointment, 1/2 lb. wool, and two open-wove bandages every week for six years	£52 10 0
In-patient treatment—five months at £2 per week	£40 0 0
	£92 10 0

This contrasts with treatment by us:

Twelve special adhesive bandages at 2s. 3d.	£1 7 6

We understand that under the "panel" the provision of these special bandages is refused on account of expense.

We do not describe our technique in detail, because we have found that in cases where this procedure has been attempted on the strength of a bare description—perhaps imperfectly understood—the results have been poor. We have had many visitors, however, and, so far as we can learn, results quite as good as ours have been obtained subsequently by those who have actually seen the method demonstrated practically. Briefly, however, the principles are as follows.

Any morbid condition which occurs exclusively on the lower extremity is produced wholly or partly by stagnation in the venous circulation, and the exchange of tissue fluids, due to the dependent position of the limb, and/or the varicosity of the superficial veins. We take this broad view on account of the remarkable results we have had with diseases other than chronic ulcer—namely, eczema, lichen planus verrucosus, Bazin's disease, and chronic dermatitis in every clinical variety. The object, therefore, is twofold. In the first place the limb is emptied of its oedema fluid, the dilated tissue spaces being kept closed until they shrink to their normal capacity. Secondly, the centripetal flow of venous blood is restored, at first by the action of the muscles on the deep veins, and later by blocking the varicose superficial veins. Our procedure is roughly as follows.

The ulcer is measured by means of a piece of celluloid (an old *x*-ray film) ruled into squares, and the figure recorded on a chart. The girth of the limb may be taken with a tape measure, or its volume may be measured by the displacement of water in a tank we have had constructed for the purpose.

If any varicose superficial veins are accessible they are injected at once with 5 per cent. sodium morrhuate, beginning at the highest point. The bandage is then wound on the leg, starting at the metatarso-phalangeal joints and ending just below the knee. This bandage, which is a proprietary article manufactured in England, is made of an elastic fabric, and is coated with an adhesive material similar to that on ordinary strapping. It is three yards long and three inches wide. The tension is varied according to the amount of oedema present, and in extreme cases may be great enough to endanger the continuity of the bandage. It has been found convenient to wind it from without inwards—that is, in the reverse direction to the normal. It is then dusted over with talc powder to prevent it adhering to the stocking, and the patient is instructed to walk home. It is replaced in a week's time. The patient is also instructed to do as much walking as could possibly be done if the leg were healthy.

No fear need be entertained as to the danger of imprisoning the septic secretions of the foulest ulcer. It has invariably been found, on removing the bandage after a week, that such an ulcer is no longer foul, but has become a clean bright carpet of healthy granulations surrounded by the pale-bluish margin of advancing epithelium. *There is no real danger of putting the bandage*

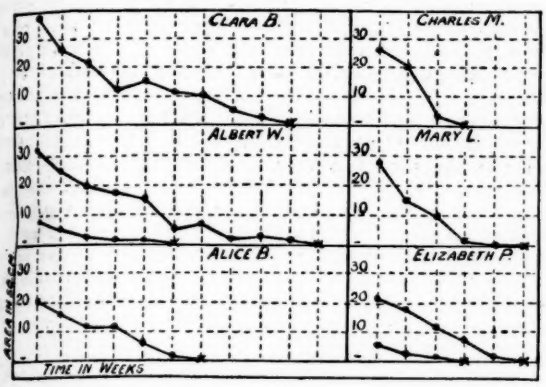
on too tightly. Disaster only occurs from this cause if the patient takes it on himself to cut the bandage instead of coming to have it reapplied. As a matter of fact, it is when the bandage is not applied tightly enough that any complaint is heard; in such cases the pain is not relieved, and the leg is apt to itch.

As already stated, the healing of the ulcer is a foregone conclusion; compression treatment, however, should be continued until the leg is reduced to its natural size. If "steps" are cut in the leg they give no pain, and they are a clear indication for maintaining the previous tension. While this is going on the remaining varicose veins are treated as they are revealed by the disappearance of the oedema.

Eventually the leg regains its pristine form; the bandage then need only be applied firmly enough to maintain it until the time has elapsed for the shrinkage of the dilated tissue spaces.

Clinical Histories.

Clara B., aged 59, first attended the County Hospital in March, 1929, with chronic ulcer of the leg, which she had had for eight



or nine years. The varicose veins were treated during 1929 by the surgeon in charge of the out-patient department, and on April 29th, 1930, the ulcers being rather worse than they were before the commencement of this treatment, he advised amputation. The patient demurred, and was referred to us, and on May 2nd I found ulcerations over the internal malleolus of 23 sq. cm., and over the external malleolus of 14 sq. cm.; they were both at least 2½ cm. deep. The girth of the ankle at the level of the ulcers was 13 inches, and at the highest level of discoloration of the skin 16 inches. After one week's treatment the girth at the level of the ulcers had been reduced to 11½ inches, and the combined extent of the ulcers reduced to 26 sq. cm. The ulcers were soundly healed at the end of nine weeks, and through all this time the patient has been able to get about her business in comfort.

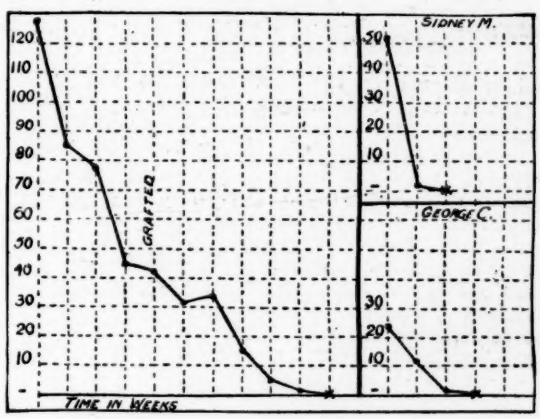
Mary L., aged 42, had had ulcers on both legs for ten years. There were a number of deep linear ulcers resembling the fissures in the bark of a tree, and the total area was calculated as 27 sq. cm. This unfortunate woman had suffered severe pain from the condition, but was more concerned with the limitation of her activities which it entailed. At the end of five weeks both legs were soundly healed, and it may be said that the patient experienced a complete freedom from the disadvantages of her condition within three days of the treatment having been instituted.

Elizabeth P. had an ulcer of the leg of twenty years' standing. When first seen on March 4th, 1930, there was an ulcer on the left leg of 22 sq. cm., and on the right leg another of 8 sq. cm.; the latter was cured in four weeks and the former in six weeks. At that date the legs were still swollen and hard, but four weeks' subsequent treatment has nearly reduced them to normal size and consistency.

Mrs. C. attended the out-patient department at the Sussex County Hospital for the first time six years ago with an ulcer on the right leg. Six months later she was admitted to hospital, and was kept in bed for five months. On discharge the ulcer was still incompletely healed, and rapidly resumed its previous dimensions, in spite of treatment in the out-patient department. Treatment has continued uninterruptedly there ever since. When first seen the ulcer measured 128 sq. cm. At the end of the fourth week nine small pieces of skin—taken from the anterior surface of the thigh—were embedded in the floor of the ulcer. Six of these grafts took, and in three weeks' time were represented by areas of growing epithelium 1 cm. in diameter. At the end of ten weeks the ulcer was soundly healed, and the patient was allowed to go away for her holiday with a bandage on the affected leg. Although this was nearly three months ago the patient has not been seen again, and in view of her record of constant attendance we feel entitled to assume that the ulcer has remained healed. (See chart below.)

Alice B., aged 54, had an ulcer of many years' duration which was treated by injections of the varicose veins alone during 1929. In January, 1930, the patient was advised that the only way of healing the ulcer was complete rest in bed. This advice was taken, and the ulcer partly healed, but while the patient was still in bed it broke down again, and became larger than ever. On May 13th she had an ulcer of 20 sq. cm. This was soundly healed at the end of six weeks' treatment.

Sidney M. had an ulcer of twelve years' duration; he was treated from October, 1928, to January, 1929, by injections of the varicose veins with quinine urethane, and ordinary dressings. The ulcer healed, but broke down again early in August, 1930. On August 19th the ulcer measured 53 sq. cm. It was soundly healed in two weeks.



Albert W., aged 55, was the least favourable of the present series of cases. He is a zinc worker, who has been out of work for twelve months on account of ulcerations of the legs. Last year his varicose veins were treated, but the ulceration became worse; there was an ulcer on the left leg of 33 sq. cm., and on the right leg of 8 sq. cm. (There was no oedema of the legs.) The former was reduced to 7 sq. cm. in five weeks, but at the end of nine weeks is still incompletely healed. The latter was practically healed after five weeks, but neither ulcer can be said to be soundly healed at the present moment, although the patient has been able to return to his work, and is, of course, very substantially benefited by the treatment.

Charles M. came under observation on May 15th, with the history of an ulcer just above the right internal malleolus, which had been present for ten years. He suffered severe discomfort and loss of rest at night, with "shooting pains." This ulcer was 27 sq. cm. in area, and was soundly healed in three weeks' time. It is worthy of note that whereas before treatment was commenced the girth of the limb above the malleoli was 11 inches, and at the highest level of discoloration 14½ inches, at the time of the healing of the ulcer these measurements were reduced to 9 inches and 12½ inches.

George C. had an ulcer of twelve months' duration. When seen on August 1st, 1930, the ulcer measured 25 sq. cm. It had soundly healed in three weeks.

Statistical Summary of the Treatment.

Of 54 cases treated in the way indicated cure resulted in **31**, the mean duration of treatment being 11.8 weeks. One patient (Albert W.) was much improved, and there remain 22 cases still under treatment, the mean duration of which is 10.4 weeks.

In 10 cases of eczema, etc., without ulcer, the mean duration of treatment was 17.5 weeks; in 23 cases of ulcers less than 5 sq. cm. it was 3.5 weeks for healing ulcer only; in 16 cases between 5 and 50 sq. cm. it was 6 weeks; and in 5 cases where the ulcer was larger than 50 sq. cm. it was 10 weeks, an average of 8 sq. cm. a week. The total area of ulcers healed was 970 sq. cm., and the rate of healing of all ulcers larger than 5 sq. cm. was 5.65 sq. cm. a week. The percentage of ulceration not responding to treatment was 0.63.

The total cost of bandages used was £78, the equivalent of a charge of £2 10s. for each patient cured. The cost of healing the ulcer alone for each patient was £1 15s.

TREATMENT OF VARICOSE ULCERS.

BY

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VARICOSE ulcer is the commonest, and one of the most important, complications of varicosity of the veins. Of all the cases of varicose veins or of their sequelae presenting themselves at the Royal Waterloo Hospital it occurs in about 22 per cent., but this figure is much higher than the true incidence of ulceration, as a large number of patients do not seek treatment until ulceration occurs. It seems commonest in the working classes, and for this reason ambulatory treatment—if suitable to the particular case—is to be preferred to all others.

In the treatment of the condition it is useful to distinguish five types; these will be dealt with in order below.

Ulcers with Visible Varicose Veins Unaccompanied by Deep Thrombosis.

Local treatment to the ulcerated area will generally result in healing of a temporary nature, as unless the actual cause is dealt with there will always be a tendency for the area to break down again, or for fresh ulceration to ensue elsewhere in the leg. In order to obtain a permanent cure the varicose veins, which impede the return of blood and lead to congestion, impaired nutrition, and ulceration, should be sclerosed. It is not proposed to discuss the several solutions which may be used for the purpose, but at the Royal Waterloo Hospital the routine is to inject 5 c.cm. of a solution of lithium salicylate 30 per cent., with tutocaine 1 per cent., into the largest veins, and a similar amount of solution of sodium chloride 20 per cent., with tutocaine 1 per cent., into the small veins, at weekly intervals, until sclerosis is complete. In the very large veins the double injection of 2 c.cm. of quinine and urethane solution and of the lithium salicylate as above, each injection being given at points about two inches apart, gives satisfactory results. Before any injection is given, we should ascertain that no contraindications exist, such as recent phlebitis, deep thrombosis, etc.

The ulcer itself is, in the large majority of cases, secondarily infected, and should first be carefully cleaned. It is important that injections—especially those close to the ulcer—should only be commenced once the ulcerated area is as free from sepsis as possible. Dressings of hydrogen peroxide, in an equal amount of water, or of eusol, are applied twice daily, and this usually suffices to give the affected area a healthy appearance in a few days. Pasta zinci co. (Lassar's paste) is then applied twice a day to the ulcer itself and to the congested, discoloured surrounding skin, and the whole covered with a thin sheet of gauze. Scarlet red 1 per cent. may be added to the paste, on account of its stimulating properties. A crêpe bandage should be worn at first until healing is advanced; it should be applied before the patient arises in the morning, and should extend from the roots of the toes to below the knee. After a few weeks the ulcer should be completely healed, and it only remains for the complete sclerosis of the veins to achieve a permanent cure.

Where the ulcers are large, very indurated, or recalcitrant to treatment advocated above, we inject the veins with sclerosing solution at fortnightly intervals, and immediately after the injection apply elastoplast bandages firmly and evenly from the toes to the knees. The bandages are applied directly to the skin and ulcers, and no other dressings are advised. The elastoplast bandages in many respects are better than Unna's paste bandages.

Ulcers with no Visible Varicose Veins and with no Deep Thrombosis.

In these cases the ulcer tends to be larger than in the previous group. The leg is usually hard, oedematous, and discoloured. No veins are visible, but one here and there may be made out by palpation, and these should be injected, if possible, observing the cautions above.

The treatment consists in supporting the tissues and aiding the return of blood by the application of suitable bandages. Either an Unna's leg bandage or an elastoplast may be used. The ulcer is first cleaned with hydrogen peroxide, then dried, and any palpable vein injected. If it is decided to use Unna's paste, then the margins of the ulcers and the surrounding skin for about three inches are painted with Unna's paste, using an ordinary flat brush, the ulcerated area itself not being touched. An ordinary crinoline bandage 3 or 4 inches wide and 6 yards long, rolled up from each end, so that the two rolled ends meet at the middle of the bandage, is soaked in hot water for a few minutes, and then squeezed as dry as possible. With the patient's leg raised and supported by an assistant, the bandage is applied firmly from the toes to the knees, one roll being in each hand. The whole surface of the bandage is then covered with one or two coats of Unna's paste, and allowed to dry; an ordinary bandage may then be rolled round the leg to prevent the stocking from coming into contact with the paste. This Unna's leg bandage should be left on a week or ten days, and then renewed until healing is complete.

The composition of the Unna's paste used is: zinci oxide 9 parts, glycerin 20 parts, gelatin 9 parts, water 20 parts.

The elastoplast bandage may be used instead of Unna leg bandage. These bandages are applied with the patient lying down on a couch, the affected leg being raised as high as possible by an assistant. Beginning the first turn round the roots of the toes, the bandage should extend to just below the knee; it must be applied evenly and tightly, and must directly cover the ulcer, which has previously been cleaned. Badly applied, it causes uneven pressure and discomfort to the wearer. Any discharge from the ulcer will soak through the bandage, and can be cleaned off with some boric lotion. The elastoplast is left on five or seven days at first, according to the amount of discharge coming through, and in the later stages it may be only renewed every fortnight. As the oedema subsides, veins not previously palpable may be found and injected. This is the method of choice, as healing is rapid, application easy, and no preparation needed as the bandage is bought ready for use. The following are typical cases:

Mrs. H. B., 53 years. Varicose ulcers for nine years. Treatment with elastoplast began on May 15th. Seven weeks later the ulcers were completely healed.

Mrs. A. S., 48 years. Large ulcer encircling half the leg. Treatment with elastoplast began on August 11th. When last seen, in September, the ulcer was practically healed.

Ulcers with Deep Thrombosis of the Veins.

In these cases injection is contraindicated, as the superficial veins are the only channels of return for the blood usually carried by the deep veins. Sclerosis of the veins would therefore only aggravate the existing condition and lead to disastrous consequences. If, in a patient with varicose veins, a rubber tourniquet is applied round the thigh and the muscles made to contract by walking, a suction is exerted on the superficial venous circulations by the deep veins, and consequently the superficial veins collapse. In deep thrombosis this, however, cannot take place, and the superficial veins do not collapse, but become more distended (Delbet and Mocquet's sign). Treatment consists in aiding the circulation by rest, with the limb raised whenever possible and the application of a supporting bandage, such as the Unna's leg bandage or elastoplast bandage already described. All standing is avoided, and in severe cases rest in the recumbent position, with the affected leg raised, is necessary. Healing is generally slow. Quinine and urethane 3 to 6 minims may be injected into the base of the ulcer in two or three places, at weekly or fortnightly intervals. Once healing is obtained, the scar is dusted with pulv. zinci amyli and a crêpe bandage worn. Care should be taken to avoid all trauma to the limb, as the scar is very apt to break down again. In cases with recent superficial phlebitis the same treatment is required, but after an interval of six months injections into the veins may be begun, proceeding cautiously with small doses and longer intervals between each injection.

Ulcer with Periostitis of Tibia.

In all cases where the ulcer is large, and lies over the tibia, an *x* ray examination should be made for periostitis. Deep thrombosis may or may not be present. These ulcers are, as a rule, more painful and more resistant to treatment. Rest, the injection of quinine or urethane into the base of the ulcer, the sclerosis of the veins, and the application of an elastoplast are the main lines of treatment, and give good results where deep thrombosis is not present. Scarification of the edges, scraping of the floor of the ulcer, Leriche's sympathectomy, and shin grafts have been recommended. Ultra-violet light, from a mercury arc lamp, on alternate days, directly to the ulcer, does not seem to be of great value. Finally, in severe and extensive cases, with deep thrombosis, when all other treatment has failed, amputation should be performed.

Multiple Ulcers.

In a case of varicose veins with multiple ulcers the Wassermann reaction should be investigated, and, indeed, the ideal to aim at is the carrying out of this test in every case presenting ulcers on the leg. It is well to bear in mind that, although the typical varicose and syphilitic ulcer have fairly well defined characteristics, there occur cases which clinically seem to belong to the varicose group, yet are resistant to the treatment for the latter, have a positive Wassermann reaction, and clear up remarkably quickly when antisyphilitic treatment is instituted.

I desire to express my thanks to Mr. Rodney Maingot, F.R.C.S., for permission to publish this article.

Memoranda:

MEDICAL, SURGICAL, OBSTETRICAL.

DIFFERENTIAL DIAGNOSIS OF ENCEPHALITIS EPIDEMICA IN NIGERIA.

In view of the observations of Pfister on the prevalence of encephalitis epidemica in China (*British Medical Journal*, June 29th, 1929, p. 1156), the following notes may be of interest.

A powerfully built Pagan man, aged about 32, presented himself for treatment on July 20th, 1929, complaining of shaking of the limbs for nine years. He had an upright carriage, and stood like a statue, with the knees slightly flexed. His face was expressionless, but the eyes looked intelligent. The speech was slurring and almost unintelligible, while the lips remained motionless. He had difficulty with mastication and deglutition, and traces of food soiled the chin and chest. His intelligence was above the average, as was evident during the subsequent examination. All his movements were slow and deliberate. The elbow-joints were slightly flexed, the right more than the left, and the hands were held in front of him. The upper limbs showed small, involuntary, myoclonic movements at the elbow-joints, the left greater than the right. These movements were absent during rest, but when he was agitated they were augmented, and involved both knee-joints also. The hands were in the interosseal position, but there was no involuntary movement of the fingers. The history began nine years ago with headache, fever, and shaking of the limbs, together with transient diplopia and lethargy; the shaking of the limbs continued up to the time of examination.

Tests of the facial muscles showed a slight but definite and slow response. There was a faint tremor of the tongue, which was protruded a little to the right. The eyesight appeared normal, and both pupils reacted to light. The fundus and media were healthy in both eyes; the eye movements were normal, and there was no nystagmus. There was no wasting. The knee-jerks were brisk; the test for Romberg's sign was negative, and co-ordination of the limbs was unimpaired. The carriage was upright, but the gait was slow, with short, careful steps. There was always some degree of flexion of the knee-joints, and the feet were lifted well clear of the ground. No areas anaesthetic to pin-pricks were discovered. The lungs and heart were normal, and the blood pressure was 128/88, which is customary for a hill Pagan. There was no albumin in the urine, and micturition and defaecation were normal. The temperature on admission was 96.8° F., and the pulse rate 60.

A fresh blood film showed a very slight degree of auto-agglutination of the red blood corpuscles. The serum-formalin reaction was negative after twenty-four hours. The cerebro-spinal fluid was under normal pressure, and an average of three counts with the Fuchs-Rosenthal counting chamber gave three white cells per cubic millimetre. The acetic-anhydride reaction of the cerebro-spinal fluid was negative.

Differential Diagnosis.—The following points are against a diagnosis of trypanosomiasis, which is prevalent in many parts of Nigeria. (1) The patient's home was in country free from the tsetse fly, and he had never travelled out of his district, owing to head-hunting traditions. (2) The absence of palpable cervical and other glands. (3) The length of history, high degree of intelligence, normal white cell count in the cerebro-spinal fluid, and the serum-formalin reaction negative after twenty-four hours, are all unusual in an advanced case of sleeping sickness. (4) In the only three cases of advanced trypanosomiasis in which the acetic-anhydride test was applied by me to the cerebro-spinal fluid the reaction was positive; I have also found that auto-agglutination of the red cells in trypanosomiasis is usually marked. (5) True somnolence has not been observed.

The white count and negative acetic-anhydride reaction in the cerebro-spinal fluid are against cerebral syphilis. In this connexion Melkersson (*Acta Medica Scandinavica*, 1928) found that this reaction gave 100 per cent. positive results in general paralysis of the insane, and the great majority positive in other syphilitic lesions of the central nervous system.

Against paralysis agitans are the age at onset, the absence of pill-rolling movements of the fingers, the upright carriage, and the slow, careful gait.

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CARCINOMA OF THE LARGE INTESTINE IN EARLY LIFE.

CARCINOMA of the large intestine, fairly common between 20 and 30 years of age, not infrequently occurs in much younger patients. Ewing[1] refers to records of cases at 12 years (caecum), 12 years (sigmoid), 11 to 17 years (rectum), and 3 years of age (colon). Phifer (1923) collected twenty-three cases of carcinoma of the sigmoid or rectum in children under 16 years, and Wainwright (1927) seven cases above the sigmoid. In the practice of an individual, however, and even of a hospital, the disease at such an early age is sufficiently rare to be noteworthy.

The case recorded here, that of a girl aged 15 years, was seen on August 25th, 1930, with acute intestinal obstruction, the culmination of a chronic obstruction of about three months' duration, and of unknown origin. Exploration undertaken immediately showed the cause to be a hard, ring-like infiltration of the descending colon. The tumour was not adherent, and there were no signs of secondary deposit. In spite of a caecostomy, the patient died eight days later.

A post-mortem examination was made by Dr. G. D. Dawson, pathologist to the hospital, who reported as follows:

"Below the splenic flexure the canal is much narrowed by a greyish, raised, ulcerated, firm annular growth, gelatinous-looking on section. Microscopically the muscular wall is honey-combed with spaces containing epithelial cells in an advanced state of mucous degeneration. Deeper, in newly formed scar tissue, is a diffuse carcinomatous infiltration."

No evidence of metastasis was found. Apart from the statement that the maternal grandfather died of a cancer of the kidney, there were no points of interest in either the previous medical or the family history.

I have to thank Dr. G. D. Dawson for the pathological details, and the medical superintendent, Dr. J. D'Ewart, for permission to record the case.

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[1] Ewing: *Neoplastic Diseases*, third edition, 1928, p. 710.

Reports of Societies.

SURGERY IN DIABETES.

AT a meeting of the Section of Surgery of the Royal Society of Medicine on December 3rd, with Mr. C. H. FAGGE in the chair, Professor G. E. GASK opened a discussion on surgery in diabetes.

Professor Gask said that in pre-insulin days diabetes had presented a difficult problem to the surgeon. Treves in 1898 had stated that diabetes offered a serious bar to any kind of operation, and that the wounds refused to heal readily, providing a suitable soil for the development of putrefaction and the growth of pyogenic bacteria. The discovery of insulin had altered the position profoundly, and Banting's work had influenced the surgery of the whole world. In the case of a patient for whom an operation of convenience was proposed, such as the cure of a hernia, the presence of diabetes offered no bar to an operation, and but slight addition to its risk. Where a patient required surgical intervention to save his life, the discovery of diabetes should not lead to the postponement of operation; a suitable dose of insulin should be injected before the operation, and afterwards he should receive a course of antidiabetic treatment. In cases of gangrene occurring in diabetic patients, opinions differed about the course to be followed. In pre-insulin days amputation was performed as early and as high as possible; gangrene of the toes, for example, was treated by amputation at the knee-joint, where the collateral circulation was good. Nowadays more conservative treatment could be employed, and in some cases the spread of local gangrene could be prevented. Where pyogenic infections, such as carbuncle, were associated with diabetes insulin should be given as soon as possible, and all steps to lessen the infection should be taken early, since sepsis tended to aggravate the diabetes. The anaesthetic of choice in operative procedures was a local one, and recent improvements in local anaesthesia made this method possible in the majority of cases. If local anaesthesia were contraindicated, general anaesthesia with gas and oxygen or, if necessary, ether should be used, but chloroform was the least desirable of all anaesthetics in diabetes.

Dr. GEORGE GRAHAM, who followed, also made some reference to the limitation of surgical practice in diabetes before the discovery of insulin, but was able to quote the history of two patients described by Mr. Spencer in 1892, both of whom had gangrene of one limb; one refused operation and died in diabetic coma, and the other recovered after amputation. When sugar was discovered in the urine of a patient the diagnosis of diabetes could only be established by a sugar tolerance test. If there was time, the patient should be prepared for operation by means of dieting and insulin for from four to seven days. He considered that every hospital should have a dietitian and a diet kitchen, so that there should be no chance of errors in feeding following transference to a surgical ward. On the day of operation 50 grams of sugar and 25 to 50 units of insulin should be given three hours before the patient went to the theatre, in order to ensure that there should be plenty of glycogen in the liver. In cases of acute abdominal crises occurring in diabetic patients, there was no time for such preparation; the blood sugar should be estimated if possible, but if this was out of the question 50 grams of dextrose and anything from 25 to 75 units of insulin should be administered early. Where vomiting was severe, glucose in saline solution should be injected intravenously; this had the additional advantage of restoring the salt content of the blood. After-treatment required that the same food should be given as an ordinary patient would receive, insulin being increased as necessary. Urine should be passed and tested every three hours, if possible, and the sugar content be taken as an indication of the insulin requirement. Correlation with tests of the blood sugar content had shown the urine to be a very fair guide. Gangrene in diabetes only occurred in conjunction with arterio-sclerosis. In cases of acute pyogenic infection the longer the patient remained without insulin the worse the diabetes became. Dr. Graham described two cases in which the insertion of radium into neoplasms had produced a similar exacerbation. This, however, had passed off with the removal of the radium in the first case; the second patient was still under treatment. In a patient with fracture of the neck of the femur, moreover, a great increase in insulin had been required. Provided that the insulin was increased sufficiently to balance the damage done, there was little danger that the sugar tolerance would be impaired on recovery from such acute conditions. The speaker believed that many elderly patients without true diabetes benefited by insulin given during pyogenic infections and before operation.

Dr. R. D. LAWRENCE said that in cases where the surgical condition was not dependent on coexistent diabetes, as in appendicitis, operations could be performed with the same degree of safety and success as in non-diabetic cases, the responsibility for controlling the diabetes during and after operation falling upon the physician. Among 163 diabetic patients on whom he had operated for cataract, carbuncle, gangrene necessitating amputation, and for other conditions not dependent on diabetes, only thirteen (8 per cent.) had died. Of these only one had died in diabetic coma, the remainder succumbing to complications such as pneumonia, embolus, heart failure, uraemia, or septicaemia. The chief dangers of operation on diabetic patients were shock and severe post-operative acidosis. Dr. Lawrence usually gave 100 grams of carbohydrate before operation with a balancing dose of insulin, afterwards modifying the insulin according to the results of urine and blood sugar tests. The variability in the needs of different cases was extreme. Chloroform was the worst anaesthetic to use, because of its toxic action on the liver. Infiltration should not be employed where local sepsis was present, since it might lead to extensive sloughing. A spinal anaesthetic was ideal whenever possible, and the speaker said he had had good results with avertin. The anaesthetic should be chosen with a view to minimizing post-operative vomiting, from which a patient might drift into acidosis. Dr. Lawrence described two cases of diabetic patients in whom serious abdominal operations had been tolerated well as a result of insulin and glucose given during the post-operative period in quantities determined by the height of the blood sugar. He agreed that gangrene occurred only when arterio-sclerosis was present; in the foot, if pulsation was good in the dorsalis pedis artery, a favourable result often followed without operation. In dry gangrene there was no occasion to intervene hurriedly; only in rapid, spreading gangrene with much oedema was high amputation urgently necessary. In intermediate cases he advised drainage of sepsis, treatment of the diabetes, and no immediate intervention; many such lesions would heal. Finally, the speaker drew attention to the condition known as "diabetic acute abdomen." This occurred in patients with severe ketosis who were in the pre-comatose state; there was vomiting, pain, tenderness, and vague abdominal rigidity. If the temperature was raised it was in favour of a non-diabetic origin of the illness, but it was almost impossible to make a definite diagnosis; leucocytosis offered no indication, since it commonly exceeded 20,000 in severe ketosis. Insulin and enemata might cause a disappearance of symptoms, but in cases of doubt it was wiser to operate and find nothing, rather than to delay treatment of a perforated appendix.

Mr. CYRIL NITCH recalled the fact that glycosuria might occur as a result of apprehension. Following operation on a diabetic patient the nurse should be warned of the danger of hypoglycaemia. The urine should be tested by Benedict's method four-hourly, and insulin should be given according to the degree of reduction observed. Fluids were important in hypoglycaemia, since the patient became dehydrated by deep respiration, and the acidosis was increased. Mild cases of gangrene should be treated conservatively with local applications, warmth, and ultra-violet light if the dorsalis pedis artery was patent. Severe pain was an indication for operation, but it should be remembered that the sudden removal of a large area of sepsis sometimes produced hypoglycaemia.

Dr. O. LEYTON disagreed that patency of the dorsalis pedis artery should decide the need for, or level of, amputa-

tion, and described a case where he had unwillingly performed Syme's operation on both feet of a diabetic patient, the dorsalis pedis being occluded on both occasions; perfect healing had followed. He mentioned the recent experiments of Harandranath Muckerjee, who had found it possible to produce hypoglycaemia with phosphotungstate of insulin given by mouth, and whose results he had been able to confirm at the London Hospital. In surgical cases where injections were resented by the patient, this might offer a good method of controlling diabetes. Whether it was harmful when given over a long period had not yet been discovered.

Dr. P. J. CAMMIDGE advised the use, not only of glucose and insulin before operation, but of glucose and saline solution given intravenously before the patient was taken back to the ward. He found that this tended to prevent post-operative vomiting. During the first three days after operation 80 to 100 grams of glucose, with insulin to balance it, should be given daily. Control should be based on the blood sugar readings throughout, and these could be obtained conveniently by a colorimetric method.

Mr. J. B. HUNTER advised conservative measures and treatment of the diabetes when acute cellulitis arose; usually a localized abscess formed which could be drained. He thought indolent gangrene of the toes should be treated with the patient sitting in a chair, but not recumbent, since the pendent position reduced the danger of spread of infection up the tendon sheaths. Patients were much more cheerful following operation if kept on a full diet and large doses of insulin than if their diabetes was controlled by dieting alone.

Dr. ERIC SKIPPER said that elderly diabetic patients should be advised to keep their feet scrupulously clean and dry, and to avoid unskilled operations on their own corns. Dr. GRAHAM, in his reply, endorsed this, and Professor GASK summarized the opinions of the meeting. All were agreed that the patient should have surgical treatment when necessary, without regard to his diabetes; in the treatment of gangrene opinion leaned to conservation; and it was accepted that if surgical intervention was required the patient should have careful pre- and post-operative treatment controlled by an expert.

TREATMENT OF FRACTURES OF THE UPPER EXTREMITY.

AT a meeting of the Section of Orthopaedics of the Royal Society of Medicine on December 2nd, with Mr. P. JENNER VERRALL in the chair, Dr. LORENZ BÖHLER of Vienna lectured on the treatment of fractures of the upper extremity, illustrating his remarks by several reels of cinematograph film showing actual manipulations on patients.

Dr. Böhler began by describing the treatment of fracture of the middle and proximal end of the humerus. The arm was anaesthetized by the injection of 20 c.cm. of 2 per cent. solution of novocain at a point between the fracture ends. He demonstrated how the fracture was reduced, and how the splints were adjusted, bent to the required shape, and fastened with calico bandages. The splints he used were padded with cellulose or cotton, and the apparatus was made quite immovable; the patient could be kept eight or ten weeks if necessary with the same splint. After two weeks, in such an injury as he had described, the patient could move the fingers, hand, and elbow, and the muscles of the shoulder were also active; in ten weeks, as shown again by the cinematograph illustration, all movements were completely free and active. Dr. Böhler next demonstrated the treatment on similar lines of a fracture of the distal third of the humerus. During supination of the forearm the lower fragment was always in an inverted position, but this was immediately corrected by pronating the forearm. With the elbow flexed to a right angle, and the forearm radiated inwards, an unpadded plaster splint was put on, and the fracture was reduced under strong tension. To prevent the shoulder from stiffening, and to ensure good circulation in the whole arm, the arm was flexed on a double right-angle splint. Here again all joints were completely active after ten weeks, and the muscles quite strong. The lecturer also showed the operation of reduction and treatment of fracture of the clavicle with marked displacement. Again this was performed under local anaesthesia with novocain, and the fracture was reduced by abduction of the shoulder girdle from the chest. A clavicular splint was applied, and all movements were completely free and active four weeks after injury. In fracture of the neck of the scapula the best treatment was always the use of an "aeroplane" splint. The difficulty was to retain the fragments in position until there was good union. He demonstrated the form of wooden splint which he used, two straps being applied to the chest and one strap to the opposite shoulder; this held the arm away apart from the chest. Usually fractures of the lower end of the humerus were fixed and reduced in supination of the forearm, but sometimes in pronation, depending upon the character of the fracture and the need for reducing pressure on the nerve.

Turning to the reduction and treatment of severe forearm fracture, Dr. Böhler described his method of securing complete local anaesthesia, and illustrated the operation of reduction by strong longitudinal traction. Rustless wire was introduced through both bones near the wrist and through the olecranon process, preventing the displacement of the fragments. To prevent circulatory disturbance the arm was placed on a double right-angle splint, and after a week the fingers and shoulder could be actively moved. He gave a detailed account of the apparatus of extension, emphasizing the need for strong and slow pulling so as to procure good relaxation of the muscles. The wires remained in the bones for from six to ten weeks. He had now treated a large number of fractures of the forearm in this manner, and he believed it to be the best. The trouble in much unsatisfactory treatment of forearm fractures with complete lateral displacement was that insufficient time was allowed to effect bony union, which would never be obtained in less than eight weeks. With regard to the reduction and treatment for fracture of the radius with marked displacement and splintering, he showed how counter-extension was produced by means of a strap. The local anaesthesia continued for about two hours; if the reduction was not complete at the end of that time another injection could be given. Dr. Böhler remembered one case in which reduction was only completed after six hours, the patient having to be given three injections. On the film he showed the manipulations of hyperflexion and forceful traction of the forearm, and the application of a splint. One interesting little point was that in all the cases the patient's history was clearly marked in indelible pencil on the plaster cast, together with a sketch of the injury and plan of treatment.

Finally, the lecturer demonstrated his method of reduction and treatment of a fractured finger, using local anaesthesia with novocain. A wire splint was fixed to the wrist by means of a plaster, and the finger was attached to the wire splint in hyperextension by means of adhesive tape. A fracture was reduced by gradual bending of the wire splint. Eight weeks later the patient had a useful hand. Dr. Böhler showed similarly his method of dealing with fractures of the wrist. In order to get a bony union in the scaphoid, the shortest time for fixation was six weeks; here again unsatisfactory results were generally due to too short a time being allowed. The procedure in various fractures of the metacarpal bones was illustrated, and the results were shown graphically by the free movements of the hands in the cinematograph.

Mr. B. E. SCHLESINGER said he was particularly interested in the question of infected compound fractures. Dr. Böhler seemed to have been fortunate in that his compound fracture cases came to him for treatment very early, enabling him to practise primary closure of the wounds. Every surgeon knew how unsatisfactory was the general problem of dealing with heavily infected wounds. A method of dealing with such wounds when it was too late to perform a primary suture was suggested to him in Gallipoli during the war. He found that in a bad compound fracture the wound became heavily infected with maggots, but the more heavy the maggot infection the

better were the end-results. It appeared that the natural method whereby heavily infected wounds were cleaned was through the agency of the fly; the wounds became full of maggots, and the maggots ate the dead tissue. Therefore in Gallipoli he had undertaken the breeding of maggots and had implanted them into the wound, covering the wound over with wire netting. The maggots, when implanted, resembled little pieces of cotton; they transformed the wound from a septic sloughing mass into a bright red granulating area, covered with a curious sort of evil-smelling slime, which was otherwise harmless. Later the maggots were gently scraped away, leaving a perfectly clean granulating wound, on which a secondary suture could be done quite well. The method certainly had its value, and the patient could generally be persuaded to overlook its aesthetic disadvantage.

Mr. REGINALD BROOMHEAD described a visit he had paid to Dr. Böhler's clinic in Vienna. He found there excellent team work, and the patients appeared to be progressing most satisfactorily under simple treatment. In Leeds he had been treating compound fractures on the lines laid down by the lecturer, and the cases had done extremely well. He had used dressings of vaseline gauze, and he thought the granulation tissue found on their removal was healthier than that in Dr. Böhler's cases. One striking feature about Dr. Böhler's work was that no massage was practised in his clinic, and the speaker believed he was right in that omission. The habit of "pump-handling and waggling things about" did more harm than good.

Mr. HOSFORD commented on the entire absence of general anaesthesia, and also on the neglect of massage. Sometimes with the local anaesthetic there was not complete anaesthesia, because the novocain did not apparently make its way between the bones, but in cases where absolute anaesthesia was obtainable he thought the local anaesthetic very useful. In fractures of the lower end of the radius an unpadded plaster cast was very valuable, and the patient could use his hand immediately. In those cases where a splint did not fit absolutely, the plaster had a great advantage, because it fitted the patient closely; he could move his hand, elbow, and shoulder, and so avoid subsequent stiffness. If the patients were able to move their shoulders from the very beginning they did not suffer from any stiffness, and an instruction to raise their arms two or three times a day to the full height above the head was advantageous. He had not recently used massage in fractures of the lower end of the radius. In cases in which he was not quite certain as to the result he had removed the dorsal plaster splint and applied a new plaster cast (the old plaster cast never fitted a second time); after ten days or a fortnight more it could be finally taken away. Mr. MCCRAE AITKEN said that one of the noteworthy things about Dr. Böhler's teaching was the necessity for patience and continuity in treatment. True principles never changed, though each man had his own technique. The technique of local anaesthesia in such cases was fairly new to him, and the lecturer's results were amazing and interesting.

Dr. BÖHLER, in reply, stressed the need of rest for all wounds, not only for fractures. He gave an account of his experience in the treatment of compound fractures during the war. He also replied to a question on his treatment of cases of separated epiphyses in a child. Reduction was not possible by extension alone, but by a combination of bending and pulling it was effected. In his technique for local anaesthesia he sometimes injected not from one point, but from two or three.

SPLENOMEGALY.

AT the last meeting of the Section of Pathology of the Royal Academy of Medicine in Ireland, the president, Dr. J. LAIT, read an address on some aspects of splenomegaly.

Dr. Lait first discussed the haematological diagnosis of splenic enlargements. He said that types readily recognized by a complete blood examination included leukaemia, Addison's anaemia, leukanaemia, von Jaksch's anaemia, erythraemia, acholuric jaundice, and the rare condition of Niemann's disease. Dr. Lait then described certain reticulo-endothelial diseases in which the splenomegaly often dominated the clinical picture. Abnormal metabolism, or storage of lipoid by the reticulo-endothelial system, resulted in the clinical entities of Gaucher's disease and Niemann's disease. As supporting evidence he referred to experimental hypercholesterolaemia, and to the cases reported by Schultze and Dyke. He postulated congenital dysfunction of the reticulo-endothelial blood-forming and blood-destroying tissues as the etiological factors in acholuric jaundice and erythraemia respectively. The parasites of kala-azar were so often found exclusively in the cells of the reticulo-endothelial system that this infection could be called a disease of the reticulo-endothelium. Finey's conception of Hodgkin's disease as a reticulo-endotheliosis was an advance; although the cause still remained obscure, its result was defined. Finally, Dr. Lait discussed the evolution of the infective hypothesis of the idiopathic splenomegalies, and referred to splenic anaemia and Banti's disease. He demonstrated spleen specimens showing the Gandy-Gamna nodules in which the possibly specific organism had been found, and showed photomicrographs of sections from spleens in which mycelium-like threads were clearly visible. He had also identified Gandy-Gamna nodules in a syphilitic spleen, and in one form a case of myelogenous leukaemia.

Dr. T. G. MOORHEAD criticized the president's statement that Banti's disease was never hereditary, in view of the fact that the case reported by the president was that of a boy whose father had suffered from the disease. Too little was yet known to justify dogmatism about either the incidence or the etiology of many diseases in which the spleen was enlarged. At one time acholuric jaundice was looked upon as a purely familial disease, and then later on it was recognized that non-familial cases were met with. In the same way Banti's disease was generally regarded as non-familial, but Dr. Moorhead believed that a familial variety would be recognized before long. He had recently seen a patient suffering from lymphatic leukaemia with some splenic enlargement. An interesting and unusual feature about the blood was that the red corpuscles agglutinated almost instantaneously, so that it was impossible to make blood films for examination. Dr. E. T. FREEMAN reported that he had seen two such cases of rapid agglutination; one was a case of malignant disease, and the other of septicaemia in which transfusion had been impossible owing to the rapid agglutination preventing testing the blood. Dr. R. H. MICKS had also encountered two cases in which agglutination had taken place rapidly, one being a case of pernicious anaemia.

OCULAR CHANGES DUE TO FOCAL SEPSIS.

AT a meeting of the Medical Society of London on December 8th, with Dr. R. A. YOUNG in the chair, the subject for discussion was pathological conditions of the eye due to inflammatory changes in other parts of the body.

Mr. A. F. MACCALLAN, in introducing the subject, said that a few years ago the suggestion that focal sepsis could account for any form of eye disease was treated generally with contempt by ophthalmic surgeons, but opinions had changed since then. The earliest reference to the subject in English literature which he had been able to discover was in a book by Sir William Lawrence, published in 1833, on diseases of the eye, in which the effect of a carious tooth in causing eye changes was mentioned; but there were references in Continental literature as far back as the end of the eighteenth century. Mr. MacCallan indicated a number of ocular conditions which seemed to bear a definite relation to focal sepsis. In the first category he included conditions which might frequently be cured by the elimination of the focus of sepsis without any other treatment. One of these was increased lacrymation, which was frequently encountered without deformity of the eyelids. Another was one form of chronic conjunctivitis, also some forms of ulceration of the cornea, while iritis in one of its manifestations was entirely dependent on the absorption of toxins from some septic focus in the mouth, tonsils, or

prostate. In the second category he included conditions which might be alleviated by elimination of the focus of sepsis. These included one form of keratitis, progressive myopia, which could usually be traced to some form of local or general sepsis, and thrombosis of the retinal vessels. His third category was conditions which were, in his experience, invariably associated with some form of focal sepsis, but in which no improvement was effected by elimination of the focus. Among these were cataract, by which he meant any opacity in the lens or its capsule which could be detected after the pupil had been dilated; glaucoma, of which he had not seen a case for five years in which severe focal sepsis was not demonstrable, and some cases of detachment of the retina due to inflammatory exudation between the retina and the choroid. The commonest sites of focal sepsis which might react on the eye were the mouth, the tonsils, the accessory nasal sinuses, the intestinal canal, the gall-bladder, the prostatic urethra, and the pelvic organs in the female. Even an ingrowing toenail had been reported by a competent observer to have been responsible for ocular changes. The chief forms of oral sepsis associated with eye conditions were pyorrhoea, apical abscess, septic stumps, buried fragments of previously extracted teeth—it was estimated that fragments were left behind in 30 per cent. of all cases of extraction—unerupted and impacted teeth, and also residual sepsis. The exciting agent might be living or dead bacteria, or toxic or disintegration products. In the great majority of cases the toxic products were the exciting agents. Apart from the more serious forms of eye disease, such as iritis and detachment of the retina, there was among the more numerous class of patients who came up for glasses a proportion showing some slight ocular changes which did not necessarily prevent the attainment of full normal vision with the aid of glasses. These conditions included various opacities of the lens and of the vitreous, the latter being sometimes realized subjectively by the patient as floating spots. In these cases also a possible septic focus should be sought.

Mr. ERNEST CLARKE said that it was generally acknowledged now that many pathological processes in the eye which were formerly labelled idiopathic or "gouty," on the ground that the cause was undetermined, were associated with inflammatory conditions in other parts of the body which had set free toxins in the blood. Iritis and corneal ulcers from a septic tooth or tonsil were perhaps the commonest examples. These conditions of the eye were visible, and the patient probably went at once to an ophthalmic surgeon as it was recognized that the eye was attacked; but there were a large number of pathological states of the eye which, if the vision was not impaired, were never seen by the oculist, certainly in the early stage, but which the physician should discover, for the processes going on in the eye, which could be seen, were identical with the same processes occurring in other organs, which could not be seen. For example, the catarrhal nephritis of pregnancy might be associated with acute retinitis, haemorrhages and exudates being seen all over the fundus oculi. The eye condition in these cases was not caused by the condition of the kidneys, but both owed their origin to a toxin, whatever it was, in the blood. If the macular region escaped there might be very little interference with vision. The physician who made a practice of using the ophthalmoscope as often as the stethoscope might discover the eye trouble in its early stage, the stage which the oculist seldom, if ever, saw. This meant that in the case just illustrated he would discover the kidney trouble before it manifested itself. The physician might find a few small haemorrhages in the retina which at once made him look for some focal sepsis. He might also be able to "spot" the very beginning of arterio-sclerosis. The speaker had seen many cases of so-called albuminuric retinitis in which, had they been seen earlier, the patient's life might have been prolonged or saved. There were many structures of the eye that, allowing for certain variations, were similar to those of other organs and affected in the same way. The living eye was Nature's laboratory, and the one part of the body where changes could be closely watched. Mr. Clarke mentioned certain cases of retinal haemorrhage due to focal sepsis which were cured by discovering the cause. When there were toxins in the blood these produced dilatation of the small retinal vessels, but if the septic cause were discovered and removed the haemorrhages would disappear, and, if the case was seen early, no trace or scar would be left. In advanced cases it was sometimes difficult to tell whether a retinitis was associated with renal disease or was the result of arterio-sclerosis. It was very often only a question of degree. As a rule, renal cases were bilateral; there was a star-shaped figure around the macula. Life was rarely prolonged in these cases beyond two years, and death occurred from uraemia. In cases in which there was arterio-sclerosis only about half were bilateral, life was more prolonged, and death occurred from cerebral haemorrhage or heart disease. Haemorrhages in the deeper layers of the retina might sometimes be fairly large, and though they might be absorbed, yet, if the cause was not removed, they recurred, and, by pressure on the delicate surrounding parts, did irreparable harm. Hence the extreme importance of early diagnosis, and no one using the ophthalmoscope as a routine part of the examination was likely to miss them.

Dr. MORELAND MCCREA mentioned a case of detached retina which had recently been sent to him, in which there was an extremely bad antrum; otherwise in the general examination there was nothing reported. An operation was done on the antrum, and three days later, so far as one could make out in the nursing home, there was full vision. He took it that behind the detachment there must have been some exudate. The patient was extremely optimistic about his eye condition, but his optimism was not shared by the speaker, because the man had extremely septic tonsils, and, in fact, his vision gradually went back to 6/36. One eye condition in which, if one happened to discover the septic focus, the condition cleared up every time was iridocyclitis. In cataract it was all very well to say that one should find focal sepsis, but the question was at what time it was safe to operate in cataract after the focal sepsis had been removed. In his opinion six months was a good minimum time for a cataract to be operated on after there had been gross sepsis in the teeth. He also quoted two cases to show that old age need be no deterrent to doing operations—tonsil enucleation, etc.—in people who were going blind.

Mr. E. D. DAVIS said that his experience in iridocyclitis was that about one case in ten had a septic focus discoverable. On the other hand, one saw a large number of cases of severe tonsillar sepsis and severe sinus suppuration without any changes in the eye. Further, he had enucleated tonsils for iridocyclitis, and had been rather disappointed to find that the condition was not improved. Therefore he was not very enthusiastic at present about the discovery and elimination of septic foci as necessarily leading to improvement of the eye condition.

Sir WILLIAM WILLCOX said that it was extremely interesting to hear that so many of these early manifestations of eye trouble had been demonstrated to be associated with focal sepsis. There were ophthalmic surgeons who had not yet recognized the great importance which focal sepsis had upon eye conditions. One condition not mentioned was thrombosis of the central artery of the retina; he had met with quite a number of cases in which this was directly due to focal sepsis. Another very important eye condition which was recognized as due to focal sepsis was retrobulbar neuritis. He mentioned the importance of removing dead teeth, however normal they might appear on *x*-ray examination. They were always a potential source of danger. As to the time for operating on the eye condition after a dental extraction or tonsillar operation, he thought that it took about three weeks for the body to regain its immunity.

Mr. HERBERT TILLEY showed a few anatomical drawings to illustrate the close proximity of the nasal sinuses to the eye. He particularly pointed out the honeycomb of the ethmoidal cells just on the inner border of the eyeball, and indicated the path of infection. With regard to age in operations, his own view was that there was no limit of age beyond which septic foci should not be removed. He described a successful operation for removal

of the tonsils in a woman aged 72, who insisted on the operation being done, and was very much better after it.

Mr. HAMBLIN THOMAS asked whether there was any danger of making the eye condition worse by intervention for removal of the septic foci, seeing that the system might be flooded with toxins. He had heard it said by ophthalmologists that squint and defective vision were due very often to weakness of the muscles. Was that muscular weakness due to the direct action of the toxins, or to the general endocrine or other condition?

Mr. WILLIAMSON-NOBLE said that a good many of them had had the experience that iridocyclitis seemed to go on in spite of the removal of various kinds of focal sepsis. He had found in certain cases a course of tuberculin beneficial. He thought one had to be careful not to get an exaggerated idea of focal sepsis in some of these cases. He also mentioned one instance in which persistent eye trouble did not clear up until an infection of the colon was discovered and treated by a series of Plombières douches.

The president (Dr. YOUNG) said that within the last few days he had seen an interesting example of residual infection and its relation to ocular conditions. It was the case of an edentulous woman suffering from chronic rheumatoid changes, with regard to whom they were told that there was very marked residual infection in the jaws as seen by *x* rays. Bacteriological examinations were carried out with somewhat negative results, as previously vaccine treatment had been extensively used. In order to try to get further vaccines a bacteriologist punctured the cancellous tissue of the maxilla and obtained a useful culture of *Streptococcus haemolyticus*. Within a very short time there was an acute "flare-up" in the joints, and also some iritis. He agreed with Mr. Williamson-Noble about the valuable effects of tuberculin in some ocular conditions. He had seen a number of cases greatly benefited by its cautious use, and in one or two of them he had found bovine tuberculin of more use than the human form.

Mr. MACCALLAN and Mr. CLARKE briefly replied to questions.

AT a meeting of the Section of History of Medicine of the Royal Society of Medicine on December 3rd, with Sir HUMPHRY ROLLESTON, president, in the chair, a discussion was held on the relation of the teaching of the history of medicine to clinical teaching. In an address entitled "Clio by the bedside," Dr. W. R. BETT opened the discussion by a strong appeal for the teaching of the history of medicine as an integral part of the student's medical course as tending to broaden his outlook. He urged that a knowledge of the history and previous methods of treatment of various diseases tended to give the clinician a better appreciation of the extent to which he should follow or differ from his predecessors. In the discussion that followed, many members of the Section took part, and also members of the Section of Medicine. Among the speakers were Sir HUMPHRY ROLLESTON, Sir STCLAIR THOMSON, Drs. PARKES WEBER, G. C. PEACHEY, R. O. MOON, A. CAWADIAS, J. D. ROLLESTON, W. LANGDON BROWN, H. S. STANNUS, F. R. FRASER, J. A. LINDSAY, and KINGSTON BARTON. The general opinion emerged that, while a knowledge of the history of medicine was both useful and desirable, the present overcrowded state of the student's curriculum forbade its inclusion as a separate subject, but that it would be an advantage if every lecture or demonstration could be preceded by a brief historical sketch appertaining to the subject in hand.

THE next award of the Hunterian Society's medal will be made in 1932. The object of the medal is to encourage individual efforts among general practitioners in advancing the science and art of medicine. The competition is open to all general practitioners resident within Great Britain, Ireland, and the Channel Islands, whether Fellows of the Society or not. The medal will be awarded for the best essay on some subject, chosen by each candidate, within the province of medicine, surgery, and midwifery. All essays must be received on or before December 31st, 1931. The rules governing the award may be obtained on application to the honorary secretaries, Dr. D. C. Norris, 14, City Road, E.C.2, and Mr. Andrew McAllister, 79, Wimpole Street, W.1.

Reviews.

THE ROLL OF THE I.M.S.

SEVENTEEN years ago Colonel D. G. CRAWFORD published a full and authoritative *History of the Indian Medical Service*, tracing its development from the barber-surgeons attached to some of the earliest commercial settlements of the East India Company down to the time of the outbreak of the great war. This he has now supplemented by the work before us—the *Roll of the Indian Medical Service, 1615–1930*[1]—a handsome quarto of over 760 pages, which aims at giving the name of every man appointed to the service up to the present year, with particulars of his date of birth, his medical school, his qualifications, the dates of his successive commissions, war services, honours, literary work, etc. In appropriate cases the dates of retirement and death are added. The record is not confined to those who served in India proper, for special lists enumerate the surgeons employed in the Eastern Settlements, St. Helena, China, Prince of Wales Island, and the West Coast of Sumatra. In addition, a dozen appendixes provide subsidiary information of interest, such as a list of members killed in action and statistical analyses of honours conferred, degrees, medical schools, etc.; while a preliminary chapter is devoted to correcting and bringing up to date the *History* already mentioned. The index, in small type and double columns, fills fifty-five pages, and contains nearly 6,600 names.

It is scarcely necessary to say that this compilation, which is the result of years of labour, is marked by the same accuracy, thoroughness, and knowledge that distinguished Colonel Crawford's previous work. He has sought far and wide for information bearing upon his subject; and his acquaintance with the available sources, printed or manuscript, is so complete that in some instances he has been able to correct statements in the official records. Although from its nature a work of reference rather than one for continuous reading, much curious information will be found here and there in its pages. Such is the story of Sir Robert MacAra, given on page xxxix. He served as surgeon on board various Indiamen for nearly twenty years, all the time holding a combatant commission in the British army. Then he took to active service in the Black Watch; distinguished himself greatly during the Peninsular war, was given the command of his regiment and made K.C.B., and finally was killed at Quatre Bras. On page xlix some interesting information is given upon duelling, though the author has not been able to discover a case of an officer of the service being killed in a duel. We may also note that, when working out the history of Gilbert Pasley of the Madras Medical Service (p. 256), Colonel Crawford discovered to his surprise "that he was my own great-great-grand-uncle." Such are the rewards of authorship!

The table on page 649, showing (as far as information is available) where the different members of the service were born, will interest many readers. From it we learn that, while in the period 1804–36 the Scotsmen far outnumbered the Englishmen, during 1885–96 the proportion was reversed, though in the grand total the former were not far behind the latter. The contribution of Ireland was less than one-half of that of Scotland. Several European countries figure in the list; while Persia, Syria, and Palestine provided one member each. The analysis on page 651 of the occupations of the parents of members, ranging from artisan to peer, affords no less curious reading, as also the analysis (p. 638) of degrees and diplomas.

The rapid Indianization of the service has aroused many misgivings, particularly among the general body of European residents in India; and our author appears to share these dismal forebodings. That his volume is gowned in melancholy black cannot be regarded as possessing any special significance; but the motto ("Ichabod") which he had placed upon his title-page leaves little doubt as to his views, which are perhaps natural enough in one who has

[1] *Roll of the Indian Medical Service, 1615–1930.* Compiled by Lieut.-Colonel D. G. Crawford, Bengal Medical Service (retired). London: W. Thacker and Co. 1930. (7¾ × 10, pp. li + 711. 28s.)

dwelt so long upon the glories of the past. The change, however, was inevitable, and we can only hope that the effects will be less detrimental than has been feared. Already the Indian members have taken an honourable place in the list (p. 629) of officers killed in action; of the intellectual attainments and manipulative dexterity of many of their number there can be no question; and, while there must doubtless be some difference in outlook, the new recruits are not likely to prove insensible to the traditions of the great service to which they have the honour to belong. Certainly there can be no better method of stimulating the desired *esprit de corps* than is afforded by Colonel Crawford's self-sacrificing labours.

PATHOGENESIS OF CANCER.

IN a monograph *On the Nature and Pathogeny of Cancers and the Radical Cure of Spontaneous Malignant Growths in White Mice*,[2] Dr. E. GEORGIOU discusses what he believes to be the relation of the pineal gland and ovaries to the development of malignant tumours, and describes briefly a series of experiments bearing on the subject. Dr. Georgiou's theory is that the pineal gland induces in the cells of the body a tendency to undergo retrogressive evolution—in other words, to return to the primitive form by passing back through the stages they traversed in the course of progressive evolution. He rejects the doctrine that in their evolution organized beings follow, as it were, a one-way street, maintaining that after reaching a predetermined goal of development they quite naturally and inevitably turn back on the same road till they reach the primitive form once more; and he supposes that this process applies as well to individual tissues as it does to the organism and the race. Granted this hypothesis, it is easy to conceive of cancer formation as a stage in the reversed process, and thence as an aspect of normal physiological development.

According to Dr. Georgiou, the pineal gland's capacity for bringing about retrogressive evolution is potential only; it becomes manifest through the agency of some external factor, usually an irritant. It is thus he explains the localized character of cancer formation. The ovary, he believes, exercises a function directly antagonistic to that of the pineal gland, and because normally its influence preponderates it succeeds in keeping the tendency to retrogression in abeyance. If, therefore, the ovarian function is deficient, that of the pineal gland can come into play, and an appropriate irritant would then induce a localized malignant growth. Furthermore, if the pineal could be eliminated by excision or otherwise, the retrogressive tendency of the body cells would stop, and cancer formation would not occur; and this, the author maintains, is exactly what happens, as proved by his experiments. As an additional measure he advocates supplementing the ovarian function by means of an ovarian graft, in order to restore the tissues to a normal condition, or, as he expresses it, to rejuvenate them.

Such appears to be the author's theory, though the adoption of a somewhat verbose style makes it occasionally difficult to follow. The experiments on mice were conducted as follows: four groups, each of twelve mice, suffering from spontaneous cancers, were taken; from every member of the first group the pineal gland was excised; of the second group every member received the same treatment, but in addition was subjected to ovarian grafting; in the third group ovarian grafting was attempted without pineal excision, but none of the grafts took, the reason, according to the author, being that the pineal gland exercised a dominating influence; the fourth group served as a control. The outcome of these experiments was that in the first group the tumours completely disappeared, but the animals showed no signs of rejuvenescence; in the second group the tumours disappeared completely from the seven animals that survived the operation, and these showed signs of rejuvenescence; in the third and fourth groups the tumours showed no signs of cure. The author does not state whether these experiments have been confirmed by other observers.

[2] *On the Nature and Pathogeny of Cancers and the Radical Cure of Spontaneous Malignant Growths in White Mice.* By Dr. Evagoras Georgiou. London and Woking: Unwin Brothers, Ltd. 1930. (5½ × 8½, pp. 47.)

DISEASES OF THE THYROID.

DR. N. B. FOSTER'S compact little book on *Diseases of the Thyroid Gland*,[3] with a section on malignant growths of the thyroid by his colleague at the New York Hospital, EUGENE POOL, appears to have been published previously in North America with a wide acceptance. It begins with a summary of the anatomy and physiology, and then deals with thyroiditis, goitre, tuberculosis, syphilis, myxoedema, and Graves's disease. The author points out that when exophthalmic goitre appears in childhood it occurs four times more often in girls than in boys. Even granting an inherent constitutional condition which renders the individual peculiarly liable to Graves's disease, a further exciting agent is postulated, and the question is discussed whether this is a primary structural change in the thyroid or whether the real cause must be sought elsewhere in the body, perhaps in the adrenals. The child-like hand of some patients is regarded as due to this disease being complicated by the presence of status lymphaticus, and the shape of the hands has been compared to that shown in the picture of Monna Lisa. In the section on malignant disease the work of L. B. Wilson of the Mayo Clinic is largely drawn on, and good accounts are given of carcinoma arising in an adenoma, which is responsible for the majority of the malignant neoplasms, and of carcinomas arising in aberrant thyroids in the neck, mediastinum, or base of the tongue. There is a useful select bibliography.

CLINICAL BIOCHEMISTRY.

DR. IVAN MAXWELL'S *Clinical Bio-chemistry*[4] is a book which deserves considerable popularity. It was originally intended, apparently, as a textbook for students; but it should certainly make a wider appeal than is implied by that statement, for the author has managed to treat, in a practical manner, most of the problems that comprise the routine work of a chemical pathologist. In addition, however, he has given a brief, but quite adequate, account of the purpose of the various tests and estimations which he describes, and of their place in the investigation of the disease. This feature should make the book of value to the student, who is at present rather badly served in the matter of textbooks of biochemistry. For the most part, he has nothing but his practical handbook, and the textbook of physiology (if he is at the pre-clinical stage) or of medicine (if he is at the hospital); and in general neither of these latter discusses the biochemical aspects of the subject in an adequate or inspiring manner. It is a pity that, with so much space devoted to "methods," the author should describe only one for the estimation of the blood sugar, especially as that one is by no means the most generally employed. There is an obvious error in the descriptions of the estimation of urea and non-protein nitrogen of blood, since the reader is instructed to perform the former on a blood filtrate, and the latter on whole blood; clearly the reverse must have been intended.

MIDWIFERY FOR NURSES.

MANY textbooks for nurses err on the side of over-technicality, or are marred by inaccuracy and general looseness of statement. Neither of these faults can be attributed to *Practical Midwifery for Nurses*,[5] by Dr. BETHEL SOLOMONS, Master of the Rotunda Hospital. After a brief but excellent introduction on nursing ethics, and two chapters on anatomy and physiology, normal pregnancy and labour and puerperium are dealt with; these constitute roughly half the book. A few differences from some of the English schools of teaching will be expected. The chin is not used in describing face presentations, but the mechanics of head descent, as discussed here, will be clearly appreciated by nurses who are unused to the Rotunda classifications. The method of saving the perineum

[3] *Diseases of the Thyroid Gland.* By Nellis Barnes Foster. With a Section on Malignant Growths by Eugene H. Pool. Minor Monograph Series. London: Baillière, Tindall and Cox. 1930. (Cr. 8vo, pp. v + 174; 7 figures. 6s. net.)

[4] *Clinical Bio-chemistry.* By Ivan Maxwell, M.D., B.S., M.Sc., B.Agr.Sc. Second edition. Melbourne: W. Ramsay. 1930. (5½ × 8½, pp. 120; 21 figures. 15s. net.)

[5] *Practical Midwifery for Nurses.* By Bethel Solomons, M.D., F.R.C.P.I., M.R.I.A. Oxford Medical Publications. London: Milford, Oxford University Press. 1930. (Demy 8vo, pp. xi + 354; 136 figures. 8s. 6d. net.)

and the "washing up" of the patient are peculiar to the Rotunda. Control of the fundus after delivery is discountenanced, as is also the practice of twisting the membranes. The instructions given in the event of retention of some part of the membranes seem scarcely full enough. The latter part of the book deals with abnormal pregnancy and labour and puerperium. Accidental haemorrhage, placenta praevia, and the method of dealing with extended arms are particularly well described, and the question of sepsis is adequately treated, but the chapter on obstetric operations makes no reference to perineal suture. There are two chapters on the infant, and the question of feeding is discussed without fad and with great clarity. The statement that "the child should only have one breast at a feed . . ." is strangely dogmatic, and some surprise will be evoked by the author's remark that he has "seen no definite ill effects from starchy food." The illustrations are good, the index adequate, the printing excellent, and the slips few and, luckily, unimportant. The chapter on ante-natal care is good, and a sense of proportion is well preserved. Throughout the book emergencies are well covered, and the instructions given are sufficiently precise.

Dr. ANDERSON'S *Lessons in Midwifery*[6] is a sound and useful textbook, written, as the author says in the preface, at the request of his pupils. It is a smaller work than that reviewed above, and will be used less as a book of reference than as a manual for examination purposes. It is, however, by no means a "cram" book. The heavy type headings are well chosen, the apportionment of space is good on the whole, and the twenty-one illustrations (including some "touch pictures") are clear.

The ninth edition of Professor DE LEE'S *Obstetrics for Nurses*[7] will be welcomed not only in America. The text has been reset throughout, and the excellent illustrations have been "done over," some by Felix Eisengräber of Munich. The chapter on infant feeding has been rewritten by Dr. Arthur F. Abt and Dr. B. F. Feingold. The type is very good indeed, and the instructions to nurses are definite and detailed—perhaps too detailed for the British nurse. It is now twenty-six years since the appearance of the first edition, and there has been a steady improvement both in presentation and in substance. The book will be welcomed by all midwives who wish, not merely to satisfy examiners, but to read largely.

The *Nurses' Handbook of Obstetrics*,[8] by LOUISE ZABRISKIE, is a new American work, well printed and illustrated, but poorly indexed. It is worth reading by those who wish to know something of the details of training and practice in an American lying-in hospital.

NOTES ON BOOKS.

ROGERS'S *Text-Book of Inorganic Pharmaceutical Chemistry*[9] is not designed to provide a general training in the foundations of chemistry for pharmacists, but is intended to give the pharmacist who has been adequately trained in elementary chemistry a closer acquaintance with the characters and properties of medicinal chemicals. The point is emphasized by the author in his preface that a student of pharmacy ought not to build his knowledge of chemistry out of the facts taught him in connexion with his pharmaceutical training, but should first prepare an adequate foundation in the main principles of chemistry, and he has written the book in accordance with the presumption that it will be used to supplement books on general chemistry, and not to take their place, as is sometimes unwisely done with books on pharmaceutical chemistry. The work is prepared on a methodical plan. It gives for each of the substances under description an arrangement of subheadings, such as properties, tests for identity, commercial methods of manufacture, laboratory methods of manufacture, and quantitative determination. The information given is useful, ample, and sound. The only expression we have noticed in it that was left dubious by the printer is the formula of sodium salicylate. We like particularly the historical notes relating to the discovery or first production of certain elements and compounds, and it is pleasing to observe educative references to many subjects which have no relation to pharmacy, but which the educated pharmacist is quite properly expected to know.

The eighty-seventh annual issue of the *Medical Directory*, for 1931,[10] which has just been published by Messrs. Churchill, appears to maintain the exceptionally high standard of accuracy and assiduity in compilation that has distinguished its predecessors. The present volume contains 55,035 names, compared with 54,537 in the previous edition. A decrease of 166 names is recorded in Ireland, and slight decreases have occurred in Scotland, Wales, and the Services; but these are more than balanced by substantial additions in the provinces and in the names of practitioners residing abroad. The increase in London during the year was 73. Little alteration is noticeable in the general arrangement of the volume. Dr. R. Fortescue Fox has revised his descriptive summary of the spas of Great Britain, Ireland, and New Zealand, which are now classified as principal British spas, other inland health resorts, and health resorts of the British coasts. This useful summary is illustrated by a number of new photographs. In the body of the work care has been taken to note the administrative changes effected by the Local Government Act, and a section is incorporated giving particulars of appointments to the Prison Medical Service. Some idea of the task—and success—of the publishers is conveyed by the fact that the new issue has no fewer than 2,263 pages.

The success of the little volume on *The Clinical Examination of the Nervous System*,[11] by Professor MONRAD-KROHN of Oslo, is gauged by the fact that five editions have appeared since 1921. In the latest, several additions have been made, including a short description of the methods of ventriculography and encephalography, and a description of the use of hypertonic solutions in the reduction of intracranial tension. The book is well illustrated, and the orderly way in which the facts are marshalled makes it worthy of a place on the reference shelf of students of neurology and psychiatry.

[6] *Lessons in Midwifery.* By Maurice C. Anderson, L.R.C.P., L.R.C.S.Ed. London: A. and C. Black, Ltd. 1930. (Cr. 8vo, pp. xiii + 213; 21 figures. 6s. net.)

[7] *Obstetrics for Nurses.* By Joseph B. De Lee, M.D. Ninth edition, revised and reset. Philadelphia and London: W. B. Saunders Company. 1930. (5¼ × 8, pp. 654; 267 figures. 14s. net.)

[8] *Nurses' Handbook of Obstetrics.* By Louise Zabriskie, R.N. Lippincott's Nursing Manuals. London: J. B. Lippincott Company. (5 × 8¼, pp. xviii + 535; 268 figures. 12s. 6d. net.)

[9] *A Text-Book of Inorganic Pharmaceutical Chemistry.* By Charles H. Rogers, D.Sc. (in Pharm.). Philadelphia: Lea and Febiger. 1930. (6 × 9½, pp. xxii + 676; 50 figures. 7 dollars net.)

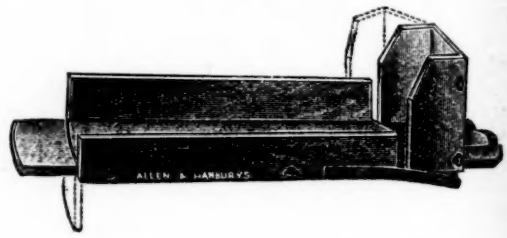
[10] *Medical Directory, 1931.* London: J. and A. Churchill. (36s. net.)

[11] *The Clinical Examination of the Nervous System.* By G. H. Monrad-Krohn, M.D., F.R.C.P. With a foreword by T. Grainger Stewart, M.D., F.R.C.P. Fifth edition. London: H. K. Lewis and Co., Ltd. 1930. (Cr. 8vo, pp. xvi + 222; 57 figures. 7s. 6d. net.)

PREPARATIONS AND APPLIANCES.

A SPLINT FOR POTT'S FRACTURE.

DR. J. E. HEPPER (Brenchley, Kent) writes: The accompanying illustration shows a new splint for Pott's fracture. It is a back splint, the lower end of which, with attached foot-piece, is capable of being moved from side to side. The dislocation is reduced and the leg is put up on the splint, the foot-piece being fixed in a direct line with the splint by means of a nut on the under side. The side pieces are then fixed to the foot-piece, and the heel is secured in position by cotton-wool padding. The side pieces are strapped together over the ankle-joint, further locking the heel. The nut is then loosened, and pressure, exerted on the outer side of the movable portion by means of a spring acting along the outer side of the splint, maintains the complete reduction of the ankle-joint.



The movable portion can be detached completely from the splint, so that, when desired, the foot and leg can be put up in plaster-of-Paris without taking the leg off the splint. The splint can be used for either leg, as the spring will fit on either side. The leg-piece can be lengthened or shortened as desired, and the foot-piece can be adjusted backwards or forwards on the movable portion. Detachable side splints are fixed to the leg-piece so as to anchor the leg firmly, thereby preventing twisting, and so making the pressure on the movable portion more effective. The nut securing the movable portion to the leg splint is made of wood, so that clear *x*-ray photographs can be obtained, both antero-posteriorly and laterally, when the foot is fixed in position.

Messrs. Allen and Hanburys Ltd. are the makers.

BRITISH INSTITUTE OF RADIOLOGY.

ANNUAL CONGRESS.

THE annual congress and exhibition of the British Institute of Radiology (incorporated with the Röntgen Society) took place at the Central Hall, Westminster, on December 3rd to 5th. An exhibition of radiological apparatus, material, and literature, to which more than twenty firms contributed, was opened by Sir HUMPHRY ROLLESTON. The exhibition was full and interesting, but it was distinguished from previous events of the kind only by certain additional refinements in apparatus, and not by any revolutionary advances.

The president of the Institute, Mr. C. E. S. PHILLIPS, O.B.E., one of the earliest members of the former Röntgen Society, delivered an address from the chair. It was a survey of recent events in radiology, more particularly from the point of view of one interested in the engineering and physical aspects. Of the six papers read to the congress four dealt with the mechanism of *x*-ray apparatus. Of the other two, one was a demonstration of research on the growth of bone as illustrated by radiography, by Dr. H. A. HARRIS, and the other, a description of changes in the bones in hyperparathyroidism and hyperthyroidism, by Dr. DONALD HUNTER. The latter was illustrated by cinematograph films. Two memorial lectures were delivered to the congress. One was the eleventh Mackenzie Davidson Memorial Lecture, which was by Professor G. P. THOMSON, F.R.S., on "Some recent experiments on cathode rays"; the other was the thirteenth Silvanus Thompson Memorial Lecture, by Dr. A. E. BARCLAY, which is the subject of extended mention below.

The Danger of Specialization.

In his Silvanus Thompson Lecture Dr. A. E. Barclay took as his theme "The danger of specialization." He suggested that in the medical curriculum what was needed was a dictator who, with knowledge and not arbitrarily, could say to one and all, "Thus far shalt thou go and no farther." He, that unwelcome dictator, would be able to say, "This is useful and essential; that may be useful, but is not essential, therefore you shall not teach it as part of your routine outline course." Why should the student learn masses of detail which seemed to have no practical application? Why should Providence be tempted by making everyone learn the technique of operations which only a very few would ever have the skill or the experience to perform efficiently? Each specialist was trying to teach as much as possible of his own subject to men who, in nine cases out of ten, would neither have the opportunity nor the wish to practise that particular specialty. For that one man in ten the teaching was too little to be of real value; for the other nine it was just so much detail to cram up for examination. Dr. Barclay believed that the medical student could be just as adequately prepared for his life's work in a shorter period. It was, however, only by co-operation, placing the common good before departmental interest, that the student's burden could be reduced without impairing efficiency. Each branch needed to know more and see more of the work of other branches, so that they could co-operate effectively in a team. The danger of specialization was, of course, well recognized, and steps were taken to combat it in various ways. Team work, however, seemed to be the only practical solution, and for the radiologist team work was essential.

"What is the aim and object of our education, whether it be in medicine or in science? Are we to aim at turning out a uniform herd of specialists, a large proportion of whom must in reality become general practitioners, or are we to direct our energies primarily towards developing the highest type of general practitioner, with sound common sense, out of which the specialist can evolve in due course? What is the student's aim? If he is taught by specialists he is likely to aim at being a specialist, and the result in this direction is already profoundly disquieting. In my experience it is very exceptional to find any of the best class of students who has the intention of undertaking the self-denying life of a general practitioner if he can possibly become a specialist. Therefore we have fewer and fewer of that wonderful type of medical man which has placed the prestige of our profession so high, and which is traditional as the family friend, the wise counsellor, whose wide and common-sense knowledge of medicine gives confidence not only to his patients, but to those consultants to whom he applies for help in time of need. In this country this change is a mere tendency as compared with the United States, where the man who calls himself a general practitioner is almost defunct."

Dealing with the question as it affects radiology, Dr. Barclay said that although the practitioner of diagnostic radiology happened to work in a laboratory he was essentially a clinician. His department must be a clinical service department, self-centred and self-contained only because its methods were so highly specialized that centralization of the service was the only way to progress and efficiency. Radiology covered such a wide field and was still extending so rapidly that it was now impossible for any radiologist to be other than a general practitioner in the subject and to specialize in certain branches. Radiotherapy alone, for example, had become a subject of such proportions and dependent on such a variety of laboratory research that, unless he specialized in therapy, the radiologist could not keep up with the progress in this one very important branch.

Annual Dinner.

The congress ended with a very enjoyable dinner at the Trocadero Restaurant, over which Mr. C. E. S. Phillips presided. In proposing the toast of "The Institute," Mr. Cuthbert Andrews referred to the recent formation of radiographic societies in different parts of the country—in Manchester and Birmingham, and also in Scotland. These societies were independent of the Institute, but he hoped some way would be found of establishing a bond between them. Mr. Andrews went on to give some amusing examples—we hope not apocryphal—of recent "well-informed" newspaper comments on radiology. One comment stated that "Mr. —— has presented the hospital with a complete set of *x* rays"! A description of the opening of the *x*-ray department at a local hospital, after recounting how the chest of the mayor was *x*-rayed, stated that the hospital possessed "one of six sets of *x*-ray apparatus in the United Kingdom." But these examples were matched by the hospital secretary who wrote to the manufacturers that he had been requested to inquire "the reason for the clogging of the *x*-ray pipes." Mr. C. E. S. Phillips also replied in a light and amusing speech, in which he affected to find in Shakespeare some inkling of radiology, for in *King John* occurred the words, "I am not worth this coil that's made for me," while the reference to shuffling off the mortal coil might have something to do with the advent of transformers.

In reply to the toast of "The Guests," which was proposed by Professor J. Woodburn Morison, Sir Cuthbert Wallace said that years ago it was remarked that medicine stood on three legs—medicine, surgery, and obstetrics—but to these, he thought, should now be added a fourth—namely, radiology. The strides which radiology had made in one generation were even greater than modern surgery had made in two. Dr. T. Watts Eden, president of the Royal Society of Medicine, who also replied, said that he had always felt the fascination of radiology since he first listened to the mysterious crackling of the *x*-ray tube. Nothing in modern medicine so much appealed to the imagination as the extraordinary progress which radiology had made. The radiologist of to-day fulfilled the prophecy of the evangelist: "There is nothing covered that shall not be revealed." The only province of medicine into which the radiologist did not seem to have penetrated was psychiatry, and it might yet be possible to elucidate the mysteries of the mental processes. But when that did come about, radiologists would be regarded as dangerous to society, and burned at the stake!

British Medical Journal.

SATURDAY, DECEMBER 13TH, 1930.

TUBERCULOSIS IN MAN AND ANIMALS.

TUBERCULOSIS bristles with difficulties. The more attention the thinking student gives to the subject—and it matters not whether he is pathologist, bacteriologist, or clinician—the more difficulties there appear to be. It is true that in the past few decades knowledge of treatment and prophylaxis has increased enormously, and information about methods of controlling the disease in cattle has been greatly extended. But there are still many aspects of the problem to be solved before we can really say that we understand all about the disease. We know, for example, how man *can* be infected; but, except in a few isolated cases, we do not know how he *is* infected. We know that isolated communities of uncivilized peoples are free from the disease yet have no immunity. We know that, once infected, these peoples develop tuberculosis with fatal rapidity, although in civilized countries the disease is essentially chronic; but we do not know why. The mode of infection and the comparative immunity of civilized countries are two of the fundamental problems of tuberculosis which can be solved only with the greatest difficulty; and in an attempt to place our knowledge on a sounder basis Dr. H. Harold Scott has just produced an extensive thesis,[1] under the auspices of the Medical Research Council, in which he has employed the latest instrument of medical thought—the comparative method.

The disease in animals is analogous to the disease in man. It exists chronically in domesticated animals in civilized communities, but is absent, or practically so, from wild animals in their natural state. When these wild animals become infected, as they often do in zoological gardens, they develop an acute fatal tuberculosis. Dr. Scott was for many years a pathologist in the Tropics, in both the Far East and the West Indies; subsequently he was pathologist to the Zoological Society of London. During this period he performed a very large number of post-mortem examinations on tuberculous human beings and animals, and in his report he has tabulated all these in detail. These tables—covering 300 human cases, 70 mammals, 41 birds, and 9 reptiles—by themselves form an invaluable record, and provide a wealth of detailed information for future workers, which alone would make the report of immense value to pathology. This value is increased by the addition of detailed findings in animals which have died from the double infection of tuberculosis and mycosis—numbering in all 42 birds and 9 primates. It is the most complete and informative study of the acute explosive tuberculosis of non-immune hosts which has yet appeared. Dr. Scott's examinations indicate that, when ingested in relatively small numbers, the bacilli may traverse the intestinal mucosa without causing any lesion, and pass either slowly by the lymphatic system to the thoracic duct and finally reach the lungs by way of the pulmonary arteries or, more rapidly, by the blood stream direct to the lungs from the intestine. In such cases, a primary type of infection of the lungs results, appearing as though infection had arisen by the respiratory route. If the infecting dose is large the morbid process is started in the intestinal mucosa, with resulting tubercles or ulcers. The optimum site of development varies in different species of animals. In cattle the serous membranes, especially the pleura, are most frequently affected; in pigs, the spleen; in dogs, the pericardium; in man, the digestive tract and its lymphatics, or the bones and joints. In guinea-pigs subcutaneous injection produces the disease in the lungs and spleen, in rabbits the lungs and kidneys; in birds the lungs are but rarely infected. Dr. Scott suggests that variations in the lymphatic distribution may account for this; certainly some instances of peculiar distribution in the higher apes may be thus elucidated. The disease in wild animals in captivity—homologous with human beings under civilized conditions—resembles that seen in the corresponding orders of domesticated animals, with two important differences. The powers of resistance are low, and the disease runs a very rapid course; dissemination takes place early, and at death, in spite of the short illness, lesions are widespread and advanced. A third point, of less importance, is the almost complete absence of emaciation.

Fifty of Dr. Scott's cases in wild mammals were in primates, and three-quarters of his human cases were in children under 10 years of age; the comparison of these two series is of the greatest interest. In both we are dealing with "natural" tuberculosis—the disease in animals or men not immunized against the toxin. The disease of the civilized adult is a modified tuberculosis characterized by fibroid changes round the lesion, by a chronicity in its course, and by being spread by continuity rather than by the lymph stream. In natural tuberculosis, in both groups, there are two main forms: a respiratory form, more rapidly fatal, infection causing death by generalized dissemination of the bacilli by the lymphatics and blood vessels; and an alimentary form, which is less rapidly fatal. The alimentary form, of course, may also exist as a secondary infection, due to the bacilli being swallowed in the sputum. The respiratory infection is much commoner, and Dr. Scott believes that in the Tropics the ratio of respiratory to alimentary infection is about 7 to 1, a figure which is probably nearly twice as high as in temperate climates. In the Tropics, domestic conditions are such as to encourage infection by the respiratory route.

Dr. Scott has many other interesting points to make about the distribution of the lesions caused by the disease and the anatomy of the host; the effect of the organism on immunized and non-immunized races of man and animals; the combined effects of tuberculosis and mycosis in monkeys and birds. These the student must read for himself. We congratulate Dr. Scott on producing a report of more than usual interest, compiled with scrupulous attention to detail. It is one of the most important contributions yet made to comparative pathology, and more than justifies the use of that subject in assisting to explain the processes of disease in the highest animal.

[1] Medical Research Council. Special Report Series, No. 149. Tuberculosis in Man and Lower Animals. By H. H. Scott. London: H.M. Stationery Office. (4s. net.)

CLINICAL USE OF ACETYL CHOLINE.

ACETYL CHOLINE has been known and used for many years in physiological laboratories, but only recently has it been introduced into clinical use. The history of the drug illustrates the way in which researches, which at first sight appear to be solely of theoretical interest, may prove ultimately to be of great practical importance. As long ago as 1906 Hunt and Taveau showed that acetyl choline produced lowering of the blood pressure in doses that were extraordinarily small, but the drug was regarded as an unimportant pharmacological curiosity. Gautrelet described the anti-anaphylactic properties of the drug, and suggested that it was a hormone with an action opposite to that of adrenaline. This hypothesis was confirmed by the brilliant researches of Loewi and his school, who showed that the stimulation of the vagus caused the liberation of acetyl choline in the tissues. Quite recently Dale has shown that the antidromic vasodilator effects produced by stimulation of sensory nerves are also probably due to liberation of acetyl choline. The physiological importance of this drug has therefore increased very rapidly during the last ten years. The physiological actions of acetyl choline had been known for twenty years before any attempt was made to apply the drug in clinical practice. The first workers to do this were Professor Villaret and Dr. Justin-Besançon, who carefully studied the physiological actions of acetyl choline, and then investigated its action in disease.[1] The interval of twenty years between the physiological discovery and the therapeutic application is a striking example of the fact that although many valuable discoveries pass from the laboratory to the ward, yet they often travel at a very slow rate. It has been publicly suggested that this lag is due to physiologists not taking sufficient interest in clinical work, but there remains the alternative possibility that clinicians might pay more attention to physiology.

Although it was a long time before acetyl choline was applied clinically, yet it has rapidly proved itself a drug of great value. Justin-Besançon and Villaret[2] have shown that it produces most dramatic relief in a variety of forms of arterial spasm. In particular, it is of benefit in Raynaud's disease and in early cases of arthritis obliterans. It is also giving encouraging results in certain cases of hemiplegia, and is of benefit in the treatment of trophic ulcers, hyperidrosis, and a variety of other conditions, including lead colic. In hyperpiesis acetyl choline does not appear to produce much reduction in the blood pressure, but it relieves such symptoms as vertigo. The drug must be given hypodermically or intramuscularly, for it has no action when given by mouth, and it is unsafe to inject it intravenously. Unfortunately, it is an unstable compound that oxidizes rapidly when kept in aqueous solution. Moreover, it appears possible that oxidation produces toxic substances. Villaret points out that the preservation of acetyl choline requires precautions similar to those employed with the organic arsenicals, and recommends that it be kept in powder form in sealed ampoules. He uses it in some conditions in doses of about 1 grain (0.05 gram), and for vasodilator effects in doses of 3 to 6 grains (0.2 to 0.4 gram). The drug has no cumulative action, because it is rapidly destroyed in the body, and it appears that patients can receive daily doses for months without ill effects.

[1] Justin-Bezançon: Recherches Physiologiques sur l'Acétylcholine. Paris: Masson et Cie. 1929.
[2] Villaret: L'Emploi de l'acétylcholine en clinique et en thérapeutique. *Leçons du Dimanche*. Second series. Paris: Baillière et Fils. 1930.

It is evident that the enterprise of these French workers has resulted in introducing a valuable and interesting remedy into therapeutics. The clinical actions of acetyl choline that have already been demonstrated are of very considerable importance, and there seems a reasonable probability that a number of other clinical uses will be discovered as time goes on.

THE BEIT MEMORIAL FELLOWSHIPS.

SIR OTTO BEIT, a generous and far-seeing friend to the joint cause of medical science and the alleviation of human suffering, died on December 7th. At our request Sir James K. Fowler has written the following note on the origin of the Beit Memorial Fellowships for Medical Research.

These Fellowships, as the name indicates, were founded as a "memorial," and it was the memory of his elder brother, Alfred Beit, that Otto Beit desired to perpetuate. Possibly, of all his munificent gifts for the relief of suffering and the advancement of science by the method of research, this, as the years go by, will prove to have been, if not the most fruitful in results, certainly not the least so. It may be, as is now suggested to me, useful that I should briefly record the circumstances under which the Fellowships came into being. The scheme for the transfer of the teaching of the preliminary and intermediate subjects of the curriculum from eleven or twelve medical schools to two or three institutes under the aegis of the University of London, which had then but recently emerged from one of its periodical transformations, received the almost unanimous approval of the recognized teachers of the advanced and clinical subjects, but not nearly to the same degree of those concerned with the earlier, and, as some contend, more "scientific" subjects. As one of the treasurers of the Fund formed to promote it, I had received from Mr. Alfred Beit a gift of £25,000, and, as appeared after his death, he had left by will a similar sum for the same object. The Faculty of Medicine, on which, in the meantime, the teachers of the earlier subjects had obtained a majority, advised the Senate not to proceed further with the scheme, and this involved the return of the subscriptions, amounting in all to upwards of £70,000, including those already mentioned. The lawyers were agreed that the gift made during the lifetime of the donor held good, and reverted to Mr. Otto Beit, as the residuary legatee; but as to the legacy they differed. This necessitated recourse to the courts. The University was not averse to the prospect of obtaining control of such a useful sum, and a not unfriendly suit followed. In this the Attorney-General, as required by his office as guardian of the interests of "charity," a term which has in law a wide interpretation, subsequently intervened. In the first court, and again in the Court of Appeal, judgement was given in favour of those with whom I was associated, who desired that both the gift and the legacy should go to the residuary legatee, as he had accepted a scheme which I had drafted, after consulting with the late Professor Starling, under which the first £25,000 was to be devoted to the foundation of three Research Fellowships in Medicine and the Allied Sciences. We naturally thought that six Fellowships were better than three. It was entirely Sir Otto Beit's own idea, when he had obtained control of the whole £50,000, to increase the endowment to £230,000, and not (as he perhaps not quite seriously hinted at a later period) the suggestion of another person. This in very brief outline is a record of the origin of the Fellowships which have now gained a high position in the estimation, not only of the profession, but also of the scientific world. It would be ungenerous to omit to state

that this result is largely due to the care which the Advisory Board has exercised in the selection of the candidates to be recommended for appointment by the trustees. Many men of generous mind, and in a position to give effect to their wishes, have supported schemes involving the construction of imposing buildings; but Sir Otto Beit had another object in view, one which has a less obvious appeal, and this was the endowment necessary for the support of the professors and Fellows engaged in research likely to advance our knowledge of the causes of disease and to lead to their prevention, or, failing that, the alleviation of suffering and the prolongation of life. He would have nothing to do with "bricks and mortar." Sir Otto never lost interest in the work of the Fellows, and at the meetings of the trustees for the review of their work and the election of candidates it was obvious that he had read with the greatest care the record of the results which the Fellows had obtained, and the qualifications of those who wished to join them. The Fellowships have come of age (1909–30); the founder, alas! is no more; but his deeds remain as his own memorial.

"THE TRUTH ABOUT CANCER."

IN the front of the many and various problems included under the term "cancer" there stand two confident propositions: one, that in its commencement it is a local disease; and another, that in this early and local stage a complete and permanent cure may be obtained. An inevitable corollary follows—namely, that delay in recognition and treatment entirely alters the position and will almost certainly be attended by disastrous consequences. Such propositions are commonplaces to the medical profession, but their wide application will be made effective only when they are recognized and accepted by the general public. It is the duty of the profession to protect and guide the public, and a further step in this direction—and one worthy of wide recognition—is *The Truth about Cancer*,[1] published under the authority of the British Empire Cancer Campaign. No doubt to the ordinary layman the progress of cancer research as conducted by numerous workers in laboratories all the world over seems slow, ineffective, and almost non-existent; and the detection of cause and cure hardly, if at all, advanced. The issues presented in such researches are most difficult and involved, and probably much time will elapse before they bring forth the eagerly desired and beneficent discovery. In the meanwhile, there exists the certain knowledge quoted in the opening sentences of this note, and were this knowledge universally applied no one can doubt that the present suffering and mortality due to cancer would be very considerably reduced. Because *The Truth about Cancer* will help to this end there rests with the medical profession the duty to see that the book secures the attention and interest of the general public. Part of the information it conveys is directed to the prevention of cancer, but in the main it faces the practical position and shows how great is the promise of early treatment and how disastrous the results of delay. The constituency which the book solicits is the intelligent layman. No one will depreciate the value of leaflets and tracts prepared for popular instruction, but, in the nature of things, the statements these include are blunt and dogmatic. Here, on the contrary, is a volume in which what is known about cancer is presented in a fashion that appeals to the intelligence, and may well engage the attention of a lover of knowledge even apart from the practical intention of its pages. In view of the auspices under which it is produced, and of the authors whose help has been secured, the book speaks with authority, and evidently every effort has been made—and with success, too—to make the story lucid and readable for the non-technical public. The same reasons that make it authoritative make it also careful to keep within the limits of scientific accuracy and well-adjusted statement; and, naturally, anything like sensationalism is absent from its pages. Here, in short, is what is known about cancer in so far as cancer creates a practical situation for the individual patient and for public opinion. It is in the discharge of a high professional responsibility that this knowledge is pressed on the attention of the community, and in producing and issuing the volume the British Empire Cancer Campaign has done good service in the promotion of human happiness and welfare. We offer our congratulations both on the scheme itself and on its translation into practical expression. Other methods tending to the same end have their value, but in the present instance the appeal is to the thinking members of a large audience, with the hope of informing the minds and influencing the practice of the general community. In a brief foreword Lord Reading recites the various steps taken to make the book equal to the intentions of its sponsors, and these efforts have not been in vain. We hope they may now be supported by the interest and good will of members of the medical profession.

[1] *The Truth about Cancer.* London: J. Murray. 1930. (2s. 6d. net.)

MATERNAL WELFARE IN NEW ZEALAND.

THE maternity section of the report of the Director-General of Health for New Zealand[1] contains information on certain problems of the maternity service which are similar to those encountered in this country. Recent changes have been introduced into the regulations of the New Zealand Nurses and Midwives Registration Board which require a lengthening of the course, and which will probably produce an improvement in the standard of work demanded. It has also been proposed that certain of the smaller and less satisfactory hospitals shall no longer be recognized as complete training schools, and shall only be entitled to receive pupils for a portion of their course. As in England, a large number of nurses take their midwifery certificate without any intention of practising as midwives; if the midwifery training centres are to be restricted the number of candidates will be too great for the accommodation, unless the unnecessary demand for midwifery certificates from nurses seeking ordinary hospital appointments can be stopped. The number of cases conducted by those taking the certificate are to be increased to the number prescribed by the Central Midwives Board in this country, to enable maternity nurses to register in Great Britain if they wish. Some statistics of the incidence of forceps applications show a remarkable range in different hospitals, in one the incidence being as low as 1.14 and in another as high as 57.89 per cent., with every gradation between. In forty hospitals the forceps rate is over 20 per cent., and twenty-six of these are small hospitals with less than 51 confinements annually; in many of them equipment is poor, and the possibility of obtaining complete asepsis limited, so that the dangers of forceps application are much increased. During 1929 nearly twice as many cases were conducted in hospitals as elsewhere; consequently, the result of hospital cases has a preponderating effect on the maternal mortality of the whole country. The mortality rate varies considerably in the different types of hospital, being lowest in the seven St. Helen's maternity hospitals, where it reaches 2.08 per 1,000; contrasted with this is a rate of 8.23 per 1,000 in seventy-one mixed hospitals. The conclusion is drawn that the danger

[1] Department of Health. Report of the Director-General of Health, New Zealand, for the year ended March 31st, 1930. Wellington: W. A. G. Skinner, Government Printer. 1930. (1s. 9d.)

lies in maternity and surgical cases being nursed in the same building, possibly on occasion by the same nursing staff. As a logical inference from this Dr. Henry Jellett (consulting obstetrician to this section of the Health Department) suggests that the general practitioner is an unsuitable person to undertake obstetrics, since a mixed practice makes him a source of danger to his patient. For similar reasons he is opposed to maternity homes possessing one or more wards for emergency cases; complete segregation of both staff and patient in cases of sepsis seems to be the obvious remedy, and it is satisfactory to remember that this plan will obtain in the new Queen Charlotte's Hospital in this country, when the building is complete. Opinion in New Zealand is against the giving of a bath to maternity patients on admission to hospital, and it has been forbidden in many institutions; in the new maternity hospitals in Sydney no bath-tubs are provided for ante-partum patients. The opinion of Professor B. P. Watson of the Sloane Hospital, New York, is quoted in the report; the practice at that hospital is to bathe the patient on a slab with running water, thus avoiding the menace of the full bath-tub. An investigation of 143 cases of puerperal sepsis in New Zealand during 1929 showed that delivery was assisted in 51 cases, with consequent internal manipulation. Taken in conjunction with the statistics showing the incidence of forceps application, it seems probable that a certain number of these cases would have delivered themselves normally without intervention. The report urges on practitioners the extreme importance of patience and conservative measures in the prevention of maternal mortality, a gospel which still requires to be preached in this country.

MALADIES IN PNEUMATIC DRILL WORKERS.

IT is a matter of universal amazement how users of pneumatic drills can stand the vibration and racket, but the fact remains that they do stand it. In an article on maladies from work with compressed air drills,[1] Dr. Maria Seyring describes three quite distinct groups of illness or injury which are incontestably related to the occupation. These are disturbances in the blood vessels, affections of the muscles, and injuries to the joints. Raynaud's disease ("dead" fingers) is everywhere recognized as resulting from such work. The author made a special investigation of cases among cleaners of castings and analogous processes. Systematic questioning showed that an extraordinarily high percentage suffered from these "dead" or "white" fingers, with loss of sensation when they became cold. All said that when they placed them in cold water (especially when the weather was cold) the fingers took on this unpleasant sensation. Liability to this condition increases as the years go on. Thus, among all the cleaners of castings, 4 per cent. suffered within two years of commencing work, 48 per cent. with a duration of between two and three years, 55 per cent. between three and ten years, and 61 per cent. after ten years. In one case it occurred after eighteen months. After ten years, five-sixths of the cleaners of castings were affected. It was most prevalent, though, among those cleaners who used their air drills on very hard resisting material. While this must be regarded as a vasomotor effect upon the innervation of the blood vessels, two cases are cited (coming under the observation of Dr. Seyring) where gangrene ensued at the end of a finger, necessitating amputation. Exactly similar conditions have been described in branches of the boot and shoe industry.[2] Reference is made to one shoemaker in whom the condition led to the amputation of several fingers; a case is also cited where change of employment was necessary. Two explanations of this condition are given: it may be due (*a*) to vibration and contact of the hand with the cold metal, and (*b*) to the cold draught from the exhaust of the compressed air. The author gives good reasons for dismissing the second suggested cause—namely, the draught—because the fingers usually affected are not those that are subject to this draught. Then the left hand, which does not come into contact with the draught, is affected most, and the dead feeling comes on principally on going into the cold air or on washing with cold water. The reason she considers the vasomotor changes are greater in the left hand is because it is most subjected to strong vibration of the chisel end, which is gripped very firmly. The gangrenous condition of the finger referred to occurred in people of 50 years of age—that is, at an age when atheromatous changes in the arteries take place. Under the heading "Affections of the muscles," the troubles described, of which three cases came under observation, are much rarer. Here again they were all cleaners of castings, who held the chisel in the left hand and the handle in the right. The valve at the top of the handle has to be pressed down with the thumb, and all three said that the work required quite hard pressure constantly maintained. In one, symptoms occurred after a few months' work; in another after a year, and in the third (much the worst case) after several years. All suffered from marked atrophy of the muscles of the ball of the right thumb and of the muscles close by them. Thus, the muscles of the thenar eminence affected in the severest case were as follows:

1. Opponens pollicis, abductor pollicis brevis, flexor pollicis brevis, supplied by the muscular branch of the median nerve.
2. Interosseus dorsalis 1, adductor pollicis (only slightly affected), supplied by a branch of the ulnar nerve.
3. Abductor pollicis longus, extensor pollicis longus and brevis, supplied by the radial nerve.

Sensation was affected in the region supplied by the cutaneous branch of the radial nerve. The second and third had less marked atrophy of the thenar eminences. Pressure on the muscle and nerve apparently occasioned the damage. Dr. Seyring cites analogous instances of the damage in the region of the median nerve from excessive muscular exertion among locksmiths, carpenters, drillers, weavers, and cigar-makers, and from the tight grip of the hammer and chisel by file-cutters, in whom paralysis and partial paralysis of the thenar and hypothenar eminences used to be common. In regard to injury to the joints, several cases of this have come to light since they were first described by Holzmann[3]; it has generally been described in miners, hewers working with drills, etc. A case in a metal worker and a riveter has been described. In eight out of ten cases the right elbow was involved, the symptoms being pain and limitation of movement, especially extension. In one case detachment of a piece of bone which had to be removed by operation occurred. Duration of employment in one case had been three years, and in the others from six to ten years. The names under which the condition is described by medical men are various: "arthritis deformans," "myositis ossificans," "osteochrondritis dissecans," "chondrodermatitis," and in other cases simply "inflammation" or "deformity" in the elbow-joint. The importance of these observations is that the condition has now been included among the diseases and injuries scheduled under the German Workmen's Compensation Act, thus: "Disease of the muscles, bones, and joints from the use of pneumatic drills." The vasomotor disturbances—that is, the "dead" fingers—are not included in the definition.

[1] Seyring, Maria: Erkrankungen durch Arbeit mit Pressluftwerkzeugen. *Arch. f. Gewerbepath. u. Gewerbehyg.* Issued by Dr. L. Teleky, Preuss. Landesgewerbearzt, and Professor H. Zangger, Director des Instituts f. Gerichtliche Medizin, Zürich.

[2] *Zentralbl. f. Gewerbehyg. u. Unfallverhütung*, 1929.

[3] *Zentralbl. f. Gewerbehyg. u. Unfallverhütung*, 1928.

THE EBERS PAPYRUS.

ABOUT 1862 the Ebers Papyrus was found in a tomb at Thebes, together with the Edwin Smith Papyrus. The Ebers Papyrus, though written about 1500 B.C., and the oldest existing written record, was a compilation of folk-lore and prescriptions going back for many centuries, even for as many as twenty. It was translated into German and in 1875 published by Dr. H. Joachim in the face of great difficulties, among them the impossibility of finding the modern equivalents of many of the morbid conditions mentioned, such as the ȦȦȦ, the uXedu, and the uha diseases. The first of these has been thought to be bilharziasis or the anaemia due to ankylostomiasis. One of the most interesting sections of the papyrus is that dealing with the vascular system, for at first sight it might suggest a more modern view than is actually the case; the heart, however, appears to have been regarded as a mere well and not as a pump. The account of the hair shows that fifty centuries ago the human race was wrestling just as now with the problems of grey hair and baldness, and a prescription for alopecia in the mother of a king was composed of "toes-of-a-dog, refuse-of-dates, hoof-of-an-ass." Dr. Cyril Bryan has placed the profession under a great debt of obligation by providing the first English version of the Ebers Papyrus based upon Joachim's German translation, and by adding introductory notes to the various chapters.[1] His chief, Professor G. Elliot Smith, has supplied a most instructive introduction, in which he quotes from Mr. Warren R. Dawson's account of the papyrus, and says that Dr. Bryan's book will disseminate much information about ancient Egyptian folk-lore, and by doing so will reveal the lacunae in existing knowledge.

WAR NEUROSES IN THE AMERICAN ARMY.

ONE of the most interesting contributions to the tenth volume of the history of the Medical Department of the United States Army in the World War,[2] the subject-matter of which is neuropsychiatry, is a paper by Major Sidney I. Schwab and Dr. Norman Fenton. In this the war neuroses are discussed as a medico-military problem, and the methods of treatment developed at Base Hospital No. 117, the most important base hospital in connexion with the care of war neuroses in the American Expeditionary Force, are outlined. While every member of the hospital staff was encouraged to work out his own technique of treatment, he could do so only within the limits set by certain general principles, which guided the practice of the hospital as a whole. It was laid down that the patients' stay in hospital was to be as short as possible; that attempts at cure should be instituted with all convenient speed—within forty-eight hours if it could be arranged; that medical officers must keep in mind the possibility that persistence of symptoms might be due to the patient's wish to remain protected by neuroses; and, finally, that work of some kind was an important adjunct to treatment and served to effect symptomatic cure. In treating cases of hysteria the view adopted was that the symptoms were the expression of a dissociation produced by either a physical or an emotional trauma. The physician's first aim, therefore, was to try to make the patient understand the mechanism of his neurosis, assuring him above all of the fact that this mechanism was known to be unconscious, and of the probability that the symptoms would disappear rapidly if only he co-operated in the treatment. Then followed the use of some form of suggestion treatment designed to remove as quickly as possible the cardinal symptoms, and, this accomplished, after-treatment with the object of emphasizing to the patient the fact that the symptoms had disappeared, and fixing in his mind a knowledge of the mechanism of their disappearance. Hysterical amnesias were, as a rule, treated by various associative exercises leading back to the event for which the amnesia existed and exercised its protective influence; a small series was treated from the start by hypnosis. The anxiety neuroses were, as might have been expected, far more difficult to treat. These neuroses have their roots deep in the personality of the patient, and the conflicts underlying them offer little scope for direct therapeutic attack. The patients at Base Hospital No. 117 were subjected to what seems to have been a modified psycho-analysis; they were encouraged to talk about their experiences, to reflect upon the emotional states that accompanied them, and to examine themselves as critically as they could in the light of these events and of the physician's comments upon them. It is interesting to read that the favouring element therapeutically was the patient's own sense of his duty to return to the line. "Only in exceptional cases," state the authors, "was this ever a matter of argument or even of doubt."

[1] *The Papyrus Ebers.* Translated from the German version by Cyril P. Bryan, M.B. With an introduction by Professor G. Elliot Smith, M.D., F.R.S. London: Geoffrey Bles. 1930. (10s. 6d.)

[2] *Medical Department of the United States Army in the World War.* Prepared under the direction of Major-General M. W. Ireland. Vol. x: Neuropsychiatry. Washington: Government Printing Office. (2.25 dollars.)

ALFRED HEGAR.

ALFRED HEGAR, the great German gynaecologist, was born 100 years ago, on January 6th, 1830, at Darmstadt, the son of a doctor. He studied medicine in the Universities of Giessen, Heidelberg, Berlin, and Vienna, and obtained his M.D. Giessen at the age of 22. A general practitioner in his native town, he was called to Freiburg in Breisgau in 1864 to succeed Otto Spiegelberg as professor of gynaecology and obstetrics and as director of the Frauenklinik. His clinic became a Mecca for students from his own country and from abroad, for he was a gifted teacher whose lectures were clear, straightforward, vigorous, and full of drastic humour. An indefatigable worker, he enriched his science with many original and classical contributions—such as his work on tuberculosis in the female genitalia, on ovariotomy, colporrhaphy, and puerperal fever. His book on operative gynaecology, which he brought out with R. Kaltenbach in 1874, for many years remained a standard work. To medical students who ever ask for a sign Hegar has become immortal by contributing to obstetrics one of its most valuable signs. This was first published in 1895 in the *Deutsche medizinische Wochenschrift* under the title "Diagnose der frühesten Schwangerschaftsperiode." A forceps and his well-known dilators are further associated with his name. He boldly practised operative gynaecology at a time when his colleagues were timid in tackling on a grand scale tumours menacing or inconveniencing life in so vascular and difficult a region as the pelvis. Genuinely interested in the history of medicine, he wrote a life of Semmelweis in 1882. Though honours were showered upon him, he retained his simplicity. His death at the advanced age of 84, on August 5th, 1914, clashing with the advent of the world war, caused little stir in the scientific world. Hegar was tall and thin, with sharp features and rude sarcastic manner, which unsuccessfully hid a soft heart. He was kinder to his patients than to his assistants, with whom he was often very bad-tempered. His great rule in practice was *Primum non nocere*.

A BULLETIN issued on December 8th states that the Ministry of Health has been in communication with the health authorities in Belgium and is informed that the recent deaths in the province of Liège are not due to any communicable disease. The occurrence is clearly a matter of local conditions, but it may be some days before the cause is fully and authoritatively ascertained.

Nova et Vetera.

HIERONYMUS FRACASTORIUS.

AN ENGLISH VERSION OF "DE CONTAGIONE."

"IN Cartolari's *Noble Families of Verona* is a list of the Fracastorii who sat on the Council from 1406 to 1771, and they distinguished themselves in the law, the navy, and other professions. But only two members of the family achieved lasting fame, and both followed the profession of medicine." The earlier of these two, Aventino de Fracastoro, was the adviser and physician to members of the Ghibelline family of della Scala, and was a contemporary of Can Grande II. He died in 1368, and his memory is preserved in a fine tomb with a sculptured marble effigy in the church of San Fermo at Verona.

The second, Girolamo Fracastoro, or Hieronymus Fracastorius—his works were all written in Latin, and it was by the Latin rendering of his name that he was known among his medical contemporaries—was born at Verona about 1478, during "the first period of Venetian domination" of Verona, which followed upon the fall of the Scaliger rulers. While in his teens he went to the neighbouring University of Padua, where he devoted himself, first, to mathematics, and, later, to medicine, studying under his father's friend, Girolamo della Torre, the professor of medicine, and the latter's son, Marcantonio della Torre, the professor of anatomy. Among his contemporaries at the university were many men destined to become famous, including Copernicus and, perhaps, Erasmus. This year of 1930 is "the four-hundredth anniversary of the publication of the earliest medical work of Fracastorius, the poem *Syphilis sive Morbus Gallicus*. After sixteen years of research he published, in 1546, the vastly more important prose treatise *De Contagione, Contagionis Morbis et eorum Curatione*."

To Professor Wilmer Cave Wright of Bryn Mawr College, the translator, to the Library of the New York Academy of Medicine, and to Dr. Haven Emerson the English-speaking section of our profession owes a debt of gratitude for making available a conveniently annotated edition[1] of this delightful, stimulating, and, indeed, astonishing book. For, to those hitherto unacquainted with the writings of Fracastorius, this book, written in 1546, and now for the first time printed in English, is nothing less than astonishing. What are we to think of a physician, writing more than three hundred years before the discoveries of Pasteur, Lister, and Koch, who can thus express his views as to the nature of contagion?

"For if contagion has been correctly defined, it follows that what is developed in the second thing must be of the same sort as was developed in the first thing; and that the principle in the two things is the same, and it must be the same in the fourth and fifth, and so on, in everything, in fact, that receives the contagion. . . . Now in these contagions, not only putrefaction must be produced, but from the original germs other germs must be begotten and propagated that are similar to those former germs both in their nature and combination."

It is true that his speculations carry him off into wide vistas of obscurity, as must all speculation divorced from the control of experimental verification; but who can withhold admiration from one who, without anything to guide him except the misleading concepts of his time and his own clinical and epidemiological observations, strikes forth boldly for a germ theory to explain disease? His clarity of mind recoils from nonsense as the eye closes at the menace of a blow. He seems to have some kind of protective reflex to save him from error.

"Those who invoke occult properties extricate themselves easily from these difficulties; for without more ado they refer the whole nature of contagion to these properties, just as they calmly answer many other questions, and thus are relieved from all perplexity."

In discussing pestilent fevers, Fracastorius will not accept authority, but questions even the highest exponents of medicine of his time.

"'Fevers,' says Montanus, 'which are called pestiferous, differ in the following respect from other fevers that consist in putrefaction. The putrefaction of pestilent fevers is situated either in the substance of the heart itself or in its contents, whereas in other fevers neither the substance nor the contents of the heart are putrefied.'"

Fracastorius says of the above:

"If one consider it carefully, there are great difficulties involved. In the first place, because the argument here put forward does not explain why pestilent fevers are contagious, though this appears to be the special peculiarity associated with them."

Montanus attributes the alleged putrefaction to a predisposition; as to which Fracastorius rejoins that

"it seems remarkable that this predisposition should exist in every one of ten thousand persons who die when there is a plague; especially when we see countless persons who are perfectly healthy . . . nevertheless catch that contagion from merely associating with the plague-stricken or with his clothes."

Perhaps one of the most amazing intuitions of Fracastorius is to be found in his speculations on rabies.

"Since then this contagion is not communicated by fomes and is not produced in the skin by simple contact, but requires laceration of the skin, we must suppose that its germs are not very viscous. . . . And since its progress is so slow, it might well be supposed that the contagion is analogous with either the solid parts of the body, such as the nerves and the like, or with some dense humour."

A note on this passage by the translator admits that "*nervi*" in Fracastorius cannot certainly be interpreted as nerves in the modern sense, nor does the expression "analogous with" quite satisfy; but the induction that even this disease, capable of appearing months after laceration, is a germ disease, places Fracastorius in a unique position at a time when medical opinion on the subject was delightfully innocent. "For we cannot believe," says Fracastorius, "what many assert, and what seems to be the view of Aetius, that they are so afraid of water because they imagine that they see puppies in the water."

As to phthisis, a condition at that time confused with many other respiratory diseases, our author turns for light to post-mortem findings.

"For after many dissections in certain cases I have sometimes found that a part of the lungs was sound and in no way diseased, another part not yet completely putrid and not yet ulcerated but still flaccid and soft, and showing a tendency to decay. . . . We may, therefore, call a man phthisical whose lungs are being stealthily invaded by that sort of decay; but when the pituitous discharges in the region of the lungs are merely beginning to be corrupted but the lungs themselves are not yet affected, then the man ought not to be called 'phthisical' but 'dyspnoeic,' or something of that sort."

He lays stress on infection, and points out that a man who "has never had any serious illness but is in excellent health" may nevertheless "contract the disease either from association with, or living with, a sufferer from phthisis or from fomes." His notes on syphilis and its treatment are full of interest for the medical historian, and display the trained wisdom of a great clinician and a profound scholar. They require to be read in the original, being too extensive for a brief notice here. His description, too, of lenticular fevers, while showing how imperfectly acute pyrexial conditions were differentiated in those days, is worthy of the closest study by epidemiologists.

The notes afford a valuable amplification of the text, and add greatly to its interest. It seems a pity that the notes to Books I, II, and III should be separately numbered. It is a bother to turn up "Note Number 29" and find that one has looked in the wrong series. The books being so short, serial numbers consecutive for the notes on all three would have been a convenience. This, however, is a very minor criticism, and yet the only one which has arisen in the mind of the reviewer in perusing this extremely interesting volume. The notes themselves are excellent and speak eloquently for the vast amount of

[1] Hieronymus Fracastorius. *Contagion, Contagious Diseases and their Treatment*. History of Medicine Series. Issued under the auspices of the Library of the New York Academy of Medicine. No. 11. New York and London: G. P. Putnam's Sons, The Knickerbocker Press. 1930.

care and research which has been lavished on the production. The placing of the original Latin side by side and page by page with the English translation adds greatly to the value of the book, and enables the reader to seek for himself the author's own words where the meaning is obscure or the induction almost incredibly accurate.

It is interesting to contemplate the relative sterility, in its effect on medical practice, of all this correct guessing by our colleague of four hundred years ago. His right was no better than somebody else's wrong for want of the experimental verification which was destined to be deferred until some three hundred and fifty years later. To be effective, the medical scientist must prove his point. His best speculations will not save him until he can reply, like Pasteur, to his critics, "Do not attack *me*. Attack my experiments."

S. L. C.

MEDICAL USES OF RADIUM.

REPORTS FROM RESEARCH CENTRES.

EACH year since 1922 the Medical Research Council has issued a report summarizing the results of research work in the treatment of malignant disease which has been carried out by means of radium salt entrusted to it by the Government. This stock of radium is distributed on loan among a number of institutions and local committees which participate in a scheme of research work organized under the general supervision of the Council's Radiology Committee. Taken together, then, these reports constitute a history of radium therapy during the vital years 1922 to 1929; they reflect more faithfully than could any document emanating from a single institution the tendencies of radium therapy and the technical advances it has undergone during that period.

The eighth report,[1] which covers the work of the research centres in 1929, deals more fully than did any of its predecessors with the treatment of oesophageal and rectal cancer. These growths are alike in at least three important respects: they are extremely difficult of access, highly resistant to radium, and often the seat of bacterial infection. Moreover, damage to the surrounding normal tissues is apt to be a dangerous complication of radium therapy in these regions.

Cancer of the Breast.

At the Middlesex Hospital ten unselected cases of primary cancer of the breast have been treated during the year by a combination of radical amputation and radium therapy. This method renders possible easy access to the paths of lymphatic spread, and radium is inserted into the axilla, the supraclavicular fossa, and along the intercostal vessels of the upper five or six spaces. The immediate results suggest that the addition of such extensive interstitial radiation does not materially increase the risk of the radical operation.

At St. Bartholomew's Hospital the technique described in last year's report has been followed almost without alteration, though a wider area of breast surrounding the tumour was treated than formerly. In a rather larger proportion of cases than usual the lesion was first excised locally, and radium treatment was then carried out just as though the tumour were still there. Of 82 patients treated in 1929, 38 have remained free from disease, 32 have shown local improvement, 4 are still alive but with metastases, and 8 are dead. The use of radium therapy as an adjuvant to operation is reported also from the Royal Infirmary, Cardiff, the treatment there adopted consisting in the insertion of radium tubes into the axilla at the time of operation, and subsequently giving a surface application of radium over regions possibly invaded by growth. The Irish Radium Committee, Dublin, in reporting good results from the use of the combined method in advanced cases, states that it is an advantage to eliminate the cancerous mass and to bring the skin edges together so as not to leave a big area to granulate up.

Cancer of the Uterus.

The statistical data set out under this heading summarize the results obtained at the various centres since 1921 in the treatment of cancer of the cervix by radium alone, the cases being classified as operable, borderline, and inoperable. The recorded survival rates compare unfavourably with those that have been published from time to time from such centres as Paris and Stockholm. None of the centres contributing these statistical data have followed the Paris technique, and only two have followed a technique similar to that used in Stockholm. The authors of the report suggest that the better results obtained at the Marie Curie Hospital must be attributed to the fact that this hospital has elaborated a method of treatment—a modification of the Stockholm technique—which differs from that adopted at the other centres.

Reviewing the results of the interstitial methods of treatment, the St. Bartholomew's Hospital report states that some of the patients die from cancer high up in the pelvis, with no reinvasion of the cervix and vagina. The method, therefore, is not held to be sufficient for eradicating the deeper parts of the growth, and in future methods will be employed which entail the introduction of radium into the cavity of the uterus, combined with supplementary irradiation by means of *x* rays or intra-abdominal radium. The cases treated at University College Hospital have shown that a complete gland dissection comparable to that in the neck is not possible, and it is suggested that gland dissection, if undertaken, should be combined with implantation of radium or radon.

At the General Hospital, Birmingham, which gives a detailed report of its technique, 24 mg. of radium element are used and allowed to remain in place for seven days, thus giving a dosage of 4,032 mg. hours. Sometimes only one application is given, the cervix becoming clinically free from growth, but usually two, three, or four applications are needed. The intervals between applications vary from six weeks to six months, the period depending on the individual reaction to the rays. The glandular area, which is reached by abdominal section, usually receives an application of 2,400 to 3,360 mg. hours, this treatment being applied in the interval between the first and second application to the cervix, or at the same time as one of the subsequent applications.

According to reports from the Marie Curie Hospital and the Royal Infirmary, Cardiff, the chief complications and sequels arising from radium treatment are vaginal cicatrization, slight and transient pyrexia, vesico-vaginal fistula, recto-vaginal fistula, and vesico-recto-vaginal fistula.

Mouth and Nasopharynx.

During the last five years the technique adopted for treating cancer in these regions has undergone considerable modification. Most surgeons now agree that in the treatment of cancer of the tongue needling of the primary growth is the method of choice; but they differ widely in their methods of treating the glandular area in the neck. These methods may be classified in four main groups: block dissection of the glands, leaving the radium *in situ*; surgical introduction of radium into the glands; surface application in the form of collars; and a combination of *x* rays with surface radium. At present there are insufficient data for judging the relative value of these procedures; what is important is that those employing them should keep careful records of their results and of the details of their technique in each case, in order that valid and comparable statistics may be accumulated. In the surface application of radium, for example, it is important to have precise information about the surface concentration used, the time of exposure, and the period lapsing between the treatment of the primary growth and the surface application.

[1] Medical Research Council. Special Report Series, No. 150. Medical Uses of Radium. Summary of Reports from Research Centres for 1929. H.M. Stationery Office. 1930. (9d. net.)

The Larynx.

The most detailed report comes from the General Hospital, Birmingham, where the practice has been to open up the neck externally, make a block dissection of the glands, suturing the sterno-mastoid down to the prevertebral muscles by the method of Trotter, expose the lateral wall of the pharynx, and either sew the radium tubes against the outer part of the growth or insert them into position in a lead plate to the outer side of the growth area. The method usually adopted is to insert five radon seeds, each containing 3 millicuries, into the growth, and to apply five tubes, each containing 1 mg. radium, superficially to the growth through the incision, and then, having sutured the skin wound, to leave the seeds and tubes in position for seven days. One detail of the technique has been found to have special value: when radium tubes are applied to the outer aspect of a growth in the pharynx or larynx through an incision in the neck the soft tissues are protected from the radium by means of a sterile sheet of lead 2 to 3 mm. thick, which is sewn into position. At the end of the allotted time the lead and radium are removed through the wound, which is then resutured.

Oesophagus.

At the Middlesex Hospital four different lines of treatment have been followed in the treatment of growths in this region. In a small series of cases of post-cricoid carcinoma, an incision was made in the neck in front of the anterior border of the sterno-mastoid, and, the pharynx and oesophagus having been defined, the radium was inserted, some behind the pharynx and oesophagus, and some against their lateral wall. The needles used were 2.2 cm. long, and contained 0.5 mg. of radium element; their number varied between eight and ten, and they were left in position in some cases for seven days, in others for ten. The results were not good.

In four cases intra-oesophageal application was carried out by means of a special radon applicator resembling a Souttar's tube, and in eight by means of Muir seeds on a Souttar's tube. All four patients in the former group are dead; in the latter, five died of the disease in periods varying from two to six months after the treatment, but of the three who are still alive only one is reported to be improved. Thoracotomy was carried out in four cases. The method adopted was to open one side of the chest, having just collapsed the corresponding lung, and then to insert radon seeds subpleurally so as to surround the growth on three sides. The first three patients died after the operation at intervals of four and a half months, four months, and five weeks respectively; the fourth is still alive (eight months after operation), but oesophagoscopy shows signs of upward extension of the growth, and there is reason to believe that the end cannot be much longer delayed. In none of the cases was a second thoracotomy held to be desirable. The patients were old and feeble men, and though they had borne the original operation well a second seemed rather too heroic.

The authors of the Birmingham report are of opinion that the only two regions in which the external approach to oesophageal growths is at all favourable are the neck and the lower part of the thorax. Contrasting the danger of external operation with the implantation of radium or radon by the oesophagoscope, they state that in a total number of thirty-three insertions of radon there has been no immediate mortality referable to the operation. Review of the year's work points to two cases which now appear to be free from disease. "This," states the report, "is some encouragement to persevere, and with further experience there is justification for expecting a larger number of similar great improvements."

Cancer of the Rectum.

At St. Bartholomew's Hospital growths which had extended above the peritoneal reflection at the time of colostomy were irradiated both from above and from below; in the case of infraperitoneal growths the lymphatic areas along the superior haemorrhoidal vessels have been attacked from within the abdomen. A few operable cases were dealt with by the posterior barrage method without colostomy. The report includes a survey of the twenty-nine patients treated before 1929. Of these eight are now alive, one remaining well and free from evidence of carcinoma four years after posterior barrage for an inoperable growth. One of the cases treated at the Middlesex Hospital is of special interest. Application of buried radium without operation or colostomy resulted in apparent restoration of complete comfort for some months, although the patient had had two short periods in hospital, from which he returned to work at once. The partial success of this method suggests that it is worthy of further trial in suitable cases. According to St. Mark's Hospital report, "the satisfactory results of radium treatment of squamous carcinoma of the anus is in marked contrast to the variable response of the columnar-celled tumours." The Birmingham report stresses the value of colostomy, not only for its therapeutic effect, but also because it renders possible the recognition of hepatic metastases, and so the avoidance of useless treatment.

Bladder, Prostate, and Penis.

Of six patients with carcinoma of the bladder treated at St. Peter's Hospital three are clinically well twenty-one, sixteen, and sixteen months after irradiation; one required further treatment for recurrence after an interval of eighteen months; one developed a metastatic growth in the sacrum nine months after; and one died thirteen months after. The treatment adopted in prostatic cases has consisted, where possible, of removing the gland surgically and inserting ten tubes, each containing 5 mg. of radium, into the prostatic bed and around any fragments of growth remaining. The tubes have been left in place for twenty-four to thirty-six hours before removal through the suprapubic or perineal wound. When enucleation of the gland has been impossible, the needles have been buried round it. With regard to carcinoma of the penis, the report states that "in both the fungating and the ulcerative forms . . . the growth can be made to disappear by radium, but that is, of course, no guarantee that the patient is cured. The general state of health improves rapidly; enlarged glands in the groins shrink and may disappear; the only indication for direct treatment of enlarged glands is when the skin over them is ulcerated; they should then be dissected out."

Dangers of Radium Treatment.

Although it is generally agreed that every now and then a patient having unusual sensitiveness to irradiation is met with, opinions differ widely on the question whether the rays may stimulate malignant growths to activity. "In this connexion," states the report, "it is perhaps worth while to suggest that there are several possible modes of stimulation of malignant cells. On the general principle that has been established with so many drugs, that large doses and very small doses may act in opposite ways, it may be thought that living cells can be stimulated by very small doses of irradiation. In the vegetable world both positive and negative results have been reported, and some observations suggest that it is also possible with malignant cells, but such observations are too few to give any definite proof. Another way in which radiation may possibly stimulate malignant growths is by giving a considerable dose to a growth already infected with bacteria. Here a totally different series of events must be visualized, for the reaction of a malignant growth to irradiation is partly caused by direct action upon the malignant cells themselves and partly by indirect action upon the normal tissues of the host. In the case of infected growths it is perhaps rational not to expect the normal series of reactions, and in extreme cases it may be that malignant growths do grow at a more rapid rate than they otherwise would, in spite of the damage the malignant cells themselves may have suffered from the direct radiation."

PSITTACOSIS.

MINISTRY OF HEALTH REPORT.

THE Ministry of Health issues this week a report entitled "A disease of parrots communicable to man (psittacosis)."[1] It has been compiled by Dr. E. L. Sturdee and Dr. W. M. Scott, medical officers of the Ministry, who give a detailed account of psittacosis, and conclude that its cause is probably a filterable virus. In the preparation of this report the collaboration was secured of Drs. S. P. Bedson, G. T. Western, and S. Levy Simpson, all of the London Hospital. Dr. Mervyn Gordon of St. Bartholomew's Hospital contributes an article on virus studies in relation to this infection. In a prefatory note the Chief Medical Office of the Ministry outlines the events which led to the focusing of attention in 1929 on this disease. He recalls the issue of the explanatory memorandum, the instituting of an inquiry by the medical staff of the Ministry, and the decision to prohibit the importation of parrots, which is still in operation.

Historical Aspects.

Dr. Levy Simpson gives an interesting account of the historical study of psittacosis, and indicates its bearing on the problems of epidemiology and etiology. The first recorded epidemic occurred in Switzerland in 1879, and the disease was then recognized as presenting the symptoms and signs of both pneumonia and typhoid fever. The incubation period was estimated as being from nine to fourteen days, which is very much the same as that accepted to-day; but no evidence was obtained of human case-to-case infection. Examinations of the dead birds, conducted by Professor Eberth, were negative. The next considerable epidemic was that of 1892 in Paris, when several successive cases of pneumonia were found to coincide with an importation of parrots from Buenos Aires. The conclusion was reached that the outbreak was of human origin, and not a parrot disease transmissible to man, but a year later two family outbreaks of a similar disease in Paris coincided so closely with the acquirement of sick birds as to make a causal connexion seem inevitable. The hypothesis of psittacosis as a specific infection gained strong support from the work of Nocard on material from the birds imported in 1892. In the bone marrow of dried wings of parrots which had died on the voyage he found a peculiar short highly motile Gram-negative bacillus, resembling organisms of the Salmonella group. A review in 1906, by Gilbert and Fournier, of the psittacosis outbreaks in France resulted in the appearance of a good clinical account of the disease in human beings, and the recognition of the possibility of infection from man to man. Dr. Levy Simpson describes the epidemics of psittacosis in Germany in 1896 and 1898, in the United States, in South America, and in England. He concludes with the expression of a strong opinion that all lines of investigation—namely, the epidemiological, clinical, pathological, and bacteriological—support abandonment of the erroneous hypothesis of a Salmonella infection, and incriminate a filterable virus detected by the work of Drs. Bedson, Western, and himself.

Epidemiology.

The recent widespread epidemic of psittacosis is alleged to have arisen in Brazil, but no human cases have been reported from that country. This is not considered surprising, because the disease does not probably assume epizootic proportions among birds in the wild state; in wooded tropical countries, moreover, the dead bodies of birds are quickly destroyed, and are unlikely to infect human beings. The case is, however, altered when the birds are living in captivity, and details are given of the bad sanitary conditions which have been prevailing in this connexion. Dr. Mervyn Gordon mentions that the birds at the Zoological Gardens are kept under the best hygienic conditions, and that infectious diseases are thus prevented from spreading in the same way as is possible during transport to this country. In addition to Brazilian parrots, grey African parrots have apparently been the cause of infection sometimes; three cases were due to love-birds, and one to a canary. Several cases from the Argentine have been attributed to sick thrushes. Mice and domestic fowls have been experimentally infected with material obtained from fatal human cases, and from parrots and budgerigars, but no human cases have been traced to a subsequent infection. The length of time during which a parrot may remain in a subacute infectious condition has not been fully determined, but it has been shown that the dead birds remain infectious for a very considerable number of months.

The evidence in favour of occasional human transmission of the disease seems to be unassailable, but no instances of infection of hospital nurses in attendance on psittacosis patients has been recorded in England, probably due in part to the insistence on such precautions being taken as are observed in cases of typhoid fever. House epidemics have characterized outbreaks of psittacosis, distinguishing them from influenza epidemics and pandemics. No cases have occurred where there has been no association with infected birds or patients. The curious immunity revealed among those engaged in the bird-fancying trade has attracted some attention, but the opinion is expressed that this may have been due in part to faulty diagnosis. Psittacosis is not an invariably fatal disease, and it is possible that one attack confers lifelong immunity; moreover, the report suggests that a person whose contact with birds is part of his usual employment will not generally come into such close contact with them as will a private owner, who caresses his pet parrot, feeds it from his mouth, and allows it to climb over him. Cases of psittacosis have, however, been reported among persons professionally interested in birds, and the apparent immunity to infection of the bird fancier cannot be held to detract to any extent from the value of the evidence in favour of this disease being conveyed by sick birds. Young children seem to be less susceptible than adults, and in the English series only four patients were under the age of 10.

Clinical Aspects of Psittacosis.

A valuable description is given of the clinical manifestations of psittacosis in man, based on a study of about eighty cases. The duration is said to be about two or three weeks, but in a few instances the symptoms continued with maintained pyrexia for as long as eight weeks. Convalescence is nearly always protracted and tedious, and may be interrupted by temporary relapses or by thrombosis of the femoral vein. The incubation period appears to be usually about ten days, but may be as short as four or as long as sixteen. At first the patient feels comparatively well in spite of high fever, epistaxis, chills, and generalized pain. Towards the end of the first week profound exhaustion ensues, and the patient becomes both somnolent and intermittently irritable. A troublesome paroxysmal cough appears and persists through the second week. Crepitations and scattered rhonchi are heard in the lungs, and patchy areas of consolidation develop, fusing together so as to involve considerable portions of one or both lungs. During the second week the patient may be semi-comatose; muttering delirium is usually present, and may alternate with periods of restlessness, or even violent excitement. When the prognosis appears to be hopeless the temperature sometimes begins to fall by lysis, and signs of improvement are seen. Mild, and even ambulatory, cases occur, but there is uncertainty as to what determines the degree of resistance of the patient. Epistaxis occurred in about 25 per cent. of the cases, usually on the first day. Headache was a constant feature at the beginning of the illness, reaching its maximum intensity in about ten days, and then gradually diminishing. The site was variable, but was usually frontal or occipital. Sore throat was frequent, and might be very severe; the fauces and soft palate were red and congested, and sometimes there was a yellowish exudate. Sordes of the lips were not unusual, and herpes

[1] Ministry of Health. Reports on Public Health and Medical Subjects. No. 61. A Disease of Parrots Communicable to Man (Psittacosis). By E. L. Sturdee, O.B.E., M.R.C.S., and W. M. Scott, M.D. London: H.M. Stationery Office. 1930. (2s. 6d. net.)

labialis occurred in a few cases. Cough was a common feature; it gradually increased in intensity until the paroxysms shook the whole body, leaving the patient entirely exhausted, preventing sleep, and aggravating the headache. The expectoration in most cases was very scanty, and sometimes absent. The sputum was usually mucoid, but might be mucopurulent or frankly purulent; examination of it revealed not infrequently a secondary infection of the lungs. One of the remarkable features of the disease usually was the absence of rapid or deep breathing, even when the physical signs indicated extensive pulmonary involvement. Rapid respiration, when present, appeared generally towards the end of the second week; in no instance was orthopnoea present. The pulse was relatively slow compared with the temperature, and this disproportion persisted in most cases throughout the illness. A "typhoid state" was common in all the severe cases, and the gastro-intestinal tract was usually involved to some extent. Rose spots, or similar skin lesions, were noted in nine cases. The mortality rate was about 20 per cent. Prognosis was difficult, but marked involvement of the nervous system foretold a dangerous illness, and absolute coma usually ended in death. Rigors, though often dramatic and repeated, were found to have no prognostic value.

Pathological Findings.

The changes found at necropsy were those of a general septicaemia, together with an inflammatory condition of the lungs, in some cases recalling the influenzal pneumonia of 1918. The lesions did not conform with those of classical lobar pneumonia or of broncho-pneumonia. There was usually intense engorgement, proliferation, and desquamation of epithelium, leucocytic infiltration, and increasing haemorrhage. This was followed by an abundant exudate, at first serous but later becoming fibrinous, and an increasing capillary thrombosis extending to the pulmonary arteries. The consolidation was of the lobar type, with practically no polymorph reaction. Though the bronchioles were involved with the rest of the lung substance, nothing was found to suggest that the lesion was specially related to them. Areas of degeneration and haemorrhage were found in the muscles, chiefly the rectus abdominis. The kidneys and liver showed parenchymatous degeneration, and a diffluent red septic spleen was a common finding. The stomach and intestines nearly always escaped any severe lesions. Congestion and oedema of the brain and spinal cord were not infrequent.

Etiology.

The second part of the report is devoted to a detailed record of experimental observations by Drs. S. P. Bedson and G. T. Western. They studied human cases in the recent epidemic, examined patients associated with them, and inoculated birds with infective material, their experimental work being controlled by the observation of parrots unconnected with any cases of human illness. An account is given of the steps by which the conclusion was reached that a filterable virus was concerned. It was found that the psittacosis virus withstood desiccation and the action of diluted glycerin, as well as the addition of a small quantity of ether. Exposure for thirty minutes to a temperature of 50° C. inactivated most of the virus, but not always all of it. It was shown that the virus was capable of passing through the Seitz filter, but that probably a good proportion of it was stopped.

An outstanding feature of Dr. Mervyn Gordon's experimental work was the discovery that strains of virus maintained and even increased their violence by passage through mice. Dermotropic and neurotropic affinities displayed by this virus for rabbits, after mouse passage, suggest that it may belong to the same group as the herpes virus; this is a problem specially noted in the report as calling for further investigation. The virus derived from the human cases did not display the same degree of pathogenic capacity or stability for mice as that obtained from parrots, and it is suggested that the mouse may perhaps be a more valuable means for the isolation and study of viruses than has hitherto been realized.

England and Wales.

London School of Medicine for Women.

THE annual dinner of the London (Royal Free Hospital) School of Medicine for Women took place at the Savoy Hotel on December 4th, with Mr. Malcolm Henderson presiding. About 450 sat down at the tables. The toast of "The School and Hospital" was in the hands of Mr. St. John Ervine, who confessed that he had been brought up to think that a woman doctor, or, indeed, any educated woman, was a forbidding person with a glum look, and that she had probably taken to learning only because she could not take to marriage. That was still the opinion of many men of the world—a rather ignorant body of men—and he would like to bring them into the present company and let them have a look at a gathering of women doctors, when their prejudices would be quickly dispelled. He suggested that one of the main reasons why women had become so closely connected with medicine was that they were discontented with the lighthearted treatment by men of female aches and pains. In conclusion, Mr. Ervine paid a tribute to the great woman attached to the London School of Medicine for Women (Dame Mary Scharlieb) who had just passed away. He felt that one had said almost everything that need be said about the hospital and school in remarking that out of it came a noble woman who did noble things. Mr. Malcolm Henderson, in replying to the toast, said that there was no need to affect modesty in speaking of what the hospital and school had done during the present year. This year the hospital and school were entering into an agreement which was virtually a permanent one—at all events, it was to last for fifty years—and he was sure this closer union would be happy. The year had also been memorable by the opening of a new wing of the hospital, thanks to the great generosity of Mr. Eastman, Lord Riddell, and Sir Albert Levy. This new wing would enormously increase the scope and usefulness of the hospital. He thought it rather remarkable that in these troublous times the entries to the school should not only have been maintained but increased in number. For his own part he felt extraordinarily honoured in having been associated for twenty-five years on the council of the school with the women to whose courage and wisdom and unbounded faith in the cause all this had been due. Mr. L. E. C. Norbury proposed the health of the guests, coupling with the toast the names of Mrs. Kinnell, who had done excellent work on the Hospital Board and was chairman of the Appeal Committee on behalf of the Extension Fund, and Lord Moynihan, President of the Royal College of Surgeons. Mrs. Kinnell, in responding, said that it was always a great pleasure to be associated in any way with the School of Medicine of the Royal Free Hospital. A few weeks ago Mr. Baldwin had remarked that women in higher education were not as fortunate as men in that they had no traditions; but there was something in life which was even greater than inheriting a tradition, and that was to create one. Lord Moynihan, in response, said that women, not only in medicine but everywhere else, were making better day by day. The year 1930 had been a women's year. Their recent achievements had made him think that women were capable of the greatest things in life. It had been said by many people that no woman would ever make a surgeon, because her courage would fail at the critical moment. He happened to meet one of those challengers only that afternoon, and said to him, "When two people were stranded in the straits of Messina last night, it was the woman who swam ashore." As to the future of women in medicine, he thought they had not yet quite found their role. They had the most marvellous sense of intuition, and he hoped their great faculties would be exercised in a far larger measure than had yet appeared in laboratory research. In that, and also in certain other technical directions, he believed there was a very great future open to women. The final toast, that of "The Chairman," was proposed by Miss Waller, and after the chairman's brief reply, the dinner was followed by a dance.

Home Ambulance Service.

The report of the Home Service Ambulance Committee of the Order of St. John and the British Red Cross Society for the quarter ended September 30th, 1930, describes some of the provisions of the Road Traffic Act, 1930, for the information of those in charge of motor ambulances, including the procedure that must be adopted by drivers of motor vehicles on the occurrence of accidents. It is inferred from the first schedule to the Act that motor ambulances are not subject to any specific speed limit; they are also explicitly exempted from the provision restricting the time during which drivers of certain vehicles may remain continuously on duty. When an accident occurs, causing damage or injury to any person, animal, or vehicle, the driver must stop, and if required by any person having reasonable grounds for so requiring, give his name and address, the name and address of the owner, and the identification marks of the vehicle. Where these particulars are not given, he must report the accident at a police station or to a police constable as soon as possible—in any case within twenty-four hours of its occurrence. These requirements are dealt with in Section 22 of the Act. The committee also draws attention to the means by which co-operation may be effected between the ambulance service and public authorities. Some county councils are stated to have already made substantial grants towards the provision and maintenance of new ambulances at home service stations. At the date of the report the committee had 338 ambulances at its disposal, including ninety-two affiliated stations. The number of patients carried during the quarter was 29,182, bringing the total number carried since the service was instituted in 1918 up to 930,633. A comparative table of work done in counties of England and Wales, and in Northern Ireland and in the Irish Free State, is printed at the end of the report.

Royal Surgical Aid Society.

The Lord Mayor of London, who was accompanied by both Sheriffs, presided at the sixty-eighth annual meeting of the Royal Surgical Aid Society, held at Carpenters' Hall on December 3rd. The report stated that last year the society had had an increase upon the previous year's income, which itself was a record, the total sums received being £58,497 in the way of ordinary income and £4,822 in legacies. During the year the society had assisted 31,937 patients and had supplied 42,704 surgical appliances. It was added that the remarkable growth in the practical work of the society in recent years was largely due to co-operation with the approved societies in the distribution of additional benefits in the direction of the provision of surgical appliances for their members. The Lord Mayor warmly commended the society, saying that it was most gratifying to find in these days of widespread depression and growing taxation that the society was receiving such consistent and increasing financial support. Sir Crisp English, in moving a resolution of thanks to the surgeons on the society's staff, said that the surgeons themselves were to be congratulated and envied on the most delightful and attractive work they were doing. The medical profession was sometimes said to be an arduous vocation, but it was certainly one which brought great happiness to those who followed it, and offered to them many privileges and satisfactions. He considered that the Surgical Aid Society was one of the antidotes to the spread of bolshevism, for by its means the poor man could provide his crippled son with the same special appliances as the rich man could secure. Surgical convalescence was a slow business. It was said that "illness arrived on horseback and departed on foot," and that applied especially to surgical cases. In helping individuals the society was often helping an entire family, relieving it of a great economic handicap, and thus the value of its work was multiplied. It was appropriate that the meeting should take place in Carpenters' Hall, for the surgeons were indeed master carpenters to some purpose. The vote of thanks was heartily carried, and Mr. Muirhead Little, one of the surgeons, said a few words in response. Other speakers were the Archdeacon of London, Sir George Penny, M.P., and the Sheriffs. The announcement of the sudden death, as the result of a street accident, of the society's treasurer, Mr. J. R. Cooper, a day or two before the meeting, caused a painful impression.

Consolidation of Enactments.

In pursuance of the policy of consolidating the various statutes regulating the work of the Ministry, the Minister of Health has appointed a committee with the following terms of reference: "With a view to the consolidation of the enactments applying to England and Wales (exclusive of London), and dealing with (*a*) local authorities and local government, and (*b*) matters relating to the public health, to consider under what heads these enactments should be grouped in consolidating legislation and what amendments of the existing law are desirable for facilitating consolidation and securing simplicity, uniformity, and conciseness." The chairman of the committee is Viscount Chelmsford, and the Secretary is Mr. R. S. King-Farlow of the Ministry of Health.

Scotland.

Health of Scotland.

THE third quarterly return of the Registrar-General for Scotland during the year 1930 reveals that 22,951 live births were registered during the period. This number is 1,865 less than in the previous quarter, 1,130 less than the average number for the third quarters of the preceding five years, and 3,389 less than the mean figure for the third quarters of the preceding ten years. It is the smallest number of births registered in Scotland in the third quarter of any year. Of the births registered, 11,602 were males and 11,349 females, the ratio of male and female children being 102.2 to 100. This ratio is the lowest recorded for many years. The highest birth rates were in the north-eastern and south-western parts of the country, the highest county rate being in Kirkcudbright. Deaths registered in Scotland during the third quarter numbered 13,353, being 2,533 fewer than the average number for the third quarters of the preceding five years, and 114 fewer than the mean figure for the third quarters of the preceding ten years. The general death rate for the quarter was 10.9 per 1,000—2.2 below that for the previous quarter, and practically the normal death rate for this quarter of the year. The lowest county death rates were 9.0 in West Lothian and 8.2 in Stirling. Deaths of children under 1 year of age numbered 1,358, and were equivalent to an infantile mortality rate of 59 per 1,000 registered births. This is the lowest infantile mortality rate yet recorded for any quarter in Scotland since 1913, the earliest year for which quarterly infantile mortality rates are available. The corresponding infantile mortality rate of the quarter in England and Wales was 45, and in Northern Ireland 54. Of the total deaths registered during the quarter, 453, or 3.4 per cent., were attributed to the principal epidemic diseases. Deaths from all forms of tuberculosis numbered 939, constituting 7.0 per cent. of the total deaths. This is the lowest quarterly death rate from tuberculosis so far recorded in Scotland. Deaths from malignant disease numbered 1,877, representing 14.1 per cent. of the total deaths for the quarter; this rate is the highest yet recorded in any quarter. The number of deaths from diseases and accidents of pregnancy and childbirth was 154, which was the same as in the third quarter of last year.

Retirement of Dr. R. M. Buchanan.

A meeting of the medical and laboratory staffs of the Public Health Department of the Corporation of Glasgow was held at the Sanitary Chambers, Glasgow, on November 27th, to present a gift to Dr. R. M. Buchanan on the occasion of his retirement from the office of city bacteriologist—a post which he has held for the last thirty-one years. Dr. A. S. M. Macgregor, medical officer of health for Glasgow, occupied the chair. The presentation was made by Dr. W. R. Wiseman, who said that Dr. Buchanan's name had become in Glasgow almost synonymous with the term "bacteriology." This was not surprising, since he had been

associated with the application of that science to the problems of public health through a long period of great development. Dr. Buchanan had remarkable powers of observation. He loved to observe and describe the minutiae of objects that came under microscopical investigation. His entomological studies revealed a rare taste and delicacy in manipulation, and many of these objects would be left in the laboratory for their enjoyment and edification. Besides being an acute scientific observer, Dr. Buchanan was also a man of affairs—a combination which might account for his tact and for the care and prudence that distinguished not only his scientific work but his conduct in the ordinary affairs of life. Another characteristic was his keen sense of humour, which was not an unimportant factor in producing efficient service. To the interests of his profession he had shown an unremitting devotion, and to his colleagues a marked generosity in imparting the valuable results of an extensive and varied experience. His familiar figure would be much missed in the department, where his influence would long be apparent. These remarks were supplemented by the chairman, who referred to the notable service Dr. Buchanan had rendered during the Pasteur centenary in Glasgow, and to the admirable manner in which he had carried through the Lister celebrations while president of the Royal Faculty of Physicians and Surgeons. When the British Medical Association met in Glasgow in 1922 Dr. Buchanan was president of the Section of Microbiology, and in recent years he has held office as president of the West of Scotland Branch.

Royal Edinburgh Hospital for Incurables.

At the annual meeting of the Royal Edinburgh Hospital for Incurables, held on November 28th, Professor D. P. D. Wilkie, of the surgical department in Edinburgh University, gave an address dealing with the work of the hospital. As medical science advanced, he said, the group of diseases previously regarded as incurable was being steadily reduced. With a fuller knowledge and experience of the use of radium it was now possible to benefit cases of cancer which were formerly classed as incurable. As the public came to recognize the necessity for the early treatment of this disease fewer patients would have to seek admission to such hospitals. Radium, however, was no panacea for cancer, and for many years to come the Longmore Hospital would have to deal with many cases of incurable malignant disease. Mr. J. J. Herdman, chairman of the Board of Management, said that during the past year 330 patients had been treated in the wards of the Longmore and Liberton Hospitals belonging to this institution. Of this number, 92 had died, and 32 had been discharged or had left of their own accord. The number of applications received during the year was 219; of this number, 126 had been received into the wards, 3 were declined as unsuitable, and 23 had died before beds were available for them. Of the 219 applicants, 82 suffered from cancer; of these, it was found possible to admit only 55. In regulating admission, cases were judged according to medical and domestic urgency. Lord Provost Whitson, in moving the adoption of the report, said that the growth of the Longmore Hospital had been a wonderful record of patient achievement, backed by public generosity, for nearly fifty-six years. The annual subscriptions, which were only £3,890, were just about one-fifth of what was required each year, and he commended the institution to the support of the public.

Physical Education.

In a lecture recently given in Edinburgh under the auspices of the Combe Trust on "The influence of posture, carriage, and habits on health," Mr. W. A. Cochrane said that many of the obscure and distressing conditions which called for treatment were signs of a derangement in the elaborate mechanism regulating and maintaining the upright position of the body. The attainment and maintenance of this fully erect position was one of the goals of human development; in this respect the apes might be regarded as failures. The power to maintain a fully erect posture was not strongly inherent in the human being, for the human infant took a very long time before he could stand and walk. Among many weak people the muscle tone and sense of balance were so poor that correct posture was never fully acquired. In this connexion the physical educator had an important duty in teaching the proper way to stand, sit, and walk erectly. When they stood up they depended upon the balanced postural tone of the extensor muscles of the spine and limbs; this kind of muscular action was quite different in its nervous control from that which served the ordinary contraction of muscles. For this reason ordinary games and athletics did not appeal to this mechanism, and were not fundamentally complete in giving a person the proper basis for physical health and efficiency. The neuro-muscular mechanism, which controlled the anti-gravity and respiratory muscles, had also to be trained. This training was supplied by the remedial gymnast, and the lecturer thought that his special knowledge should be made use of by an improved system of physical education in schools and colleges. It was possible, with a reasonable amount of study and concentration, to learn the essentials of good bodily mechanics and posture in a short time. A person so trained was fitted to stand the strain of life in the best possible way. True physical education was a mental process increasing in value with increased mental development. Ordinary drill, games, and athletics should be built up upon a basis of good posture; if this were not done they might be positively harmful.

Veterinary Teaching in Glasgow.

The annual distribution of prizes at the Glasgow Veterinary College was held on December 4th, when Professor Glaister delivered an address. He said that the Glasgow Veterinary College should not be regarded as a parochial institution, for the eighty-eight students attending the college were drawn from a wide area over the South and West of Scotland, as well as from the North of Ireland, England, Palestine, India, and other countries. Several years ago the Government had decided to give a grant only to the veterinary college in Edinburgh on the ground that there was room in Scotland for only one veterinary college. There were three considerations which justified the existence of the Glasgow College. In the first place a steady supply of new students was maintained; in the present year thirty new students had joined the college, which was founded over sixty years ago. Secondly, its efficiency was well authenticated by the fact that its students attended the examinations of the Royal College in London. The third test was the efficiency of the teaching staff, and the facilities provided for tuition. After the withdrawal of the Government grant, friends in the West of Scotland had rallied round the college, and the governors had been able to keep it going. Lord Provost Kelly, who presented the prizes, expressed the opinion that Glasgow was an ideal centre for veterinary teaching and research, since it was situated in the middle of a large stock-rearing area.

Belgium.

[FROM OUR CORRESPONDENT.]

The Campaign Against Acute Poliomyelitis.

WITH a view to controlling outbreaks of acute anterior poliomyelitis the Government has decided to undertake in Belgium, under the supervision of M. Bordet, the preparation of horse serum according to Professor Pettit's formula, and to arrange for the supply of ape serum from the Pasteur Institute in Paris. These serums will be placed at the disposal of medical practitioners who wish to investigate their action. It is proposed also to organize on the largest possible scale the collection, storing, and distribution of convalescent serum on the lines laid down by Netter. To obviate any difficulty in obtaining convalescent serum when urgently required, a scheme has just been brought into being to ensure constant touch being kept between medical practitioners and patients who have recovered from the disease and are willing to supply blood. Any person who has had poliomyelitis, even though the attack was slight or abortive, will be notified by his doctor

of the opportunity for service which is open to him, and invited to undergo the trivial procedure of blood withdrawal, payment for this being eventually forthcoming from the State. The blood will be collected by provincial and university laboratories, which will make arrangements to store the serum. The directors of these institutions will reserve half the quantity removed from each patient for the use of the practitioner concerned, and will not dispose of it without his authorization. The remainder of the serum will be sent to the central laboratory for distribution throughout the country as may be required.

National Health Insurance.

Resistance to the proposed legislation for national health insurance is continuing in view of the threatened restriction of the liberty of the medical profession. The Joint Assembly of Brussels Practitioners has had the happy idea of calling a meeting of the Belgian profession to acquaint it fully with the legislative proposals before Parliament. More than 700 doctors from Brussels and the provinces accepted the invitation and displayed keen interest in the position in view of the threat to various lines of medical practice. The following proposals were enunciated by Dr. Koettlitz as indicating the attitude taken by the Medical Federation of Belgium. Free choice of doctor must be absolute—that is to say that every medical practitioner, whether a member or not of a professional association, can participate in the service, provided he undertakes to abide by the decisions of the commission of arbitration. The insured person will pay his doctor directly; a minimal regional scale, approved by the Federation, will be established by the professional society, which must have existed for at least ten years and contain a minimum of 500 members. Professional secrecy must be absolute and inviolable, both directly and indirectly. Payment is to be made on behalf of every sick person, whatever his condition or the nature of the treatment afforded, and whether such treatment is given at the doctor's house, the patient's house, in a State or private hospital, or in any other medical establishment. There must be absolute freedom as regards treatment and prescribing within the limits at present in force. Control of the patients remains in the hands of the society, and of the doctors in those of their colleagues, any dispute between the doctor who gives the treatment and the medical officer of the society being settled by the commission of arbitration. Professional medical associations must be more adequately represented on the administrative technical commissions established by law. This representation is defined in the law by Articles 25 and 27, and is considered to be at present flagrantly insufficient. The medical organization indispensable for satisfactory functioning of the insurance scheme will be organized and conducted by the National Office of Public Health co-operating with the Belgian medical profession, represented by the usual medical federations, which will have a preponderating representation. A reason for the creation of this autonomous body is that it will obviate a repetition in Belgium of the faults which have been found in all the countries where insurance schemes are in operation. Elsewhere the money of the insurance societies has been largely used to erect magnificent buildings for administration—a purpose for which these funds were not intended. The insurance funds, whatever the source from which they come, must only be employed for clearly defined purposes; this will be safeguarded by the National Office.

An International Military Medical Organization.

The Belgian Government called a meeting in July, at Liège, of the heads of the medical departments of the Military, Naval, and Air Forces to discuss the creation of an International Medico-Military Records Office, and also the possible educational value likely to accrue from the interchange of military medical officers of different countries; the resolutions passed by this meeting have been communicated to the other Governments. It is proposed to establish an international office to house medical records relating to the military, naval, and air services, this office to be in close association with the permanent committee of the International Congresses of Military Medicine and Pharmacy in Belgium. Its services would be freely at the disposal of those nations which join in establishing it, contribute to its supply of records, and share in the cost of its upkeep according to the scale drawn up by the League of Nations. The idea of arranging international visits of medical officers of the three services was similarly approved, provided that some system of definitely graded instruction is adopted, or a plan is devised of sending delegates to meetings in other countries according to the customs prevailing in them; the new office might act as a central bureau of information in facilitating such interchanges. The work of bringing these decisions into effect has already begun, and the permanent committee of the International Congresses of Military Medicine and Pharmacy (which are to meet together at The Hague on the occasion of the sixth congress next June) will be charged with the approval and the drafting of the lines on which this new Records Office shall function.

First Aid in Road Accidents.

The Ministry of Public Works has authorized the establishment of a series of telephonic call-boxes on the main roads, whereby assistance may be procured for persons taken ill or involved in accidents. In the first instance, the roads to be thus equipped are those from Brussels to Ostend, Antwerp, and Esschen; to Liège and Herbesthal; to Namur, Arlon, and Sterpenich; and to the French frontier, passing through Mons. Travellers along these roads will find at intervals telephone boxes connected night and day with first-aid posts ready to supply at any point such prompt help as may be necessary in accidents or other emergencies. This service will also be available for the local police and Government services.

Correspondence.

ROYAL MEDICAL BENEVOLENT FUND.

Christmas Gifts.

SIR,—On November 8th you very kindly published my letter asking for donations to enable this Fund to give a Christmas gift to the most necessitous of our beneficiaries. I gratefully acknowledge the receipt of £120 in response to my appeal, but I need the sum of £550, if no one is to be left out. May I ask your readers to help me to find the balance still required, so that there may not be disappointment in the homes of those of our colleagues whom this Fund is trying to help. Cheques should be forwarded to the Treasurer, Royal Medical Benevolent Fund, 11, Chandos Street, Cavendish Square, W.1, as soon as possible, in order that our gifts may be distributed before Christmas Day.—I am, etc.,

THOMAS BARLOW,
President.

December 8th.

THE WORK OF LABORATORIES.

SIR,—I am sorry that Lord Moynihan should resent the very mild quip I made at his expense lately, when the new laboratories of the Hospital for Tropical Diseases were being opened. I remarked that when a prominent surgeon had chosen "to belittle the work of laboratories, to declare physiologists to be aloof from medicine, and to be somnolent," at the opening of the new Institute at Toronto, founded actually to commemorate the laboratory work of Banting and his colleagues in physiology and biochemistry, he seemed to have used "an Irish mode of encouragement" that we need not imitate.

He now complains to my great surprise that this gave "a corrupt version" of his meaning. If he did not belittle the recent work of British laboratories I do not understand the English language. His defence of himself by quoting from his address other sentences to which I did not refer is like defending the occasional tippler by quoting his moments of sobriety. A large section of his address was labelled "Physiology Lagging Behind," and in this he boasts that "we, the clinicians, have gained gigantic intellectual victories . . . with barely recognizable assistance from the laboratory." He must not run away from the fact that "aloofness from medicine" and "somnolence" were actually his own words. They were words

that gave rise to a good many smiles on the other side of the Atlantic, and some consternation in Canada, as I found there long before I had read Lord Moynihan's address myself.

Let me appeal to obviously impartial comment. I do not find that the *British Medical Journal* paid attention to his address. In a leading article in the *Lancet*, however (October 11th, p. 806), I read: "Let us pass finally to Lord Moynihan's complaints about the physiologists—that they have neglected hominal research, that they are aloof from medicine, that their science is playing truant. We believe that his contentions are mistaken, or at least greatly exaggerated." It is not only I then who have corrupted his meaning: there seems to be a general conspiracy against him.

He resents my saying also that "he thought the idea that the laboratory workers did, or could, hand over new weapons for the physicians to use was laughable." I must refer your readers to his address. I do not take up this point now, beyond noting that Lord Moynihan quoted a rhetorical question in his address and pretended that it had been asked in serious doubt and without a reply to it having been supplied. The less said of that the better. Sincerely and whole-heartedly I admire the eloquence and moving beauty of great parts of his Toronto address. I deplore all the more for his own sake—as I have told him—that he entered on that occasion into some controversial paths outside his own field of work. I have given friendly expression to him in private of my opinion of some of the methods of argument he used. As he knows, I am debarred by my office from making public answer as to those, though I (naturally) cherish a belief that the answer might be complete and devastating. I am free, however, to speak of his disparagement of our physiologists and biochemists as such, and at least of his choice of a place and time for indulging in it. If I forgive him now for his quite baseless charge against me of perversion, he in his turn must pardon me for my friendly chaff. His telling the Canadian workers that their friends and colleagues here, doing work exactly like their own, are somnolent, aloof from medicine, and lagging behind the clinicians, certainly seems to me to offer one of those occasions when, as Michael Finsbury said, "there is nothing like a little judicious levity."—I am, etc.,

Kensington, W.8, Dec. 8th. WALTER M. FLETCHER.

CARDIO-VASCULAR SYPHILIS.

SIR,—The paper by Dr. Carey Coombs upon this subject in the *British Medical Journal* for November 29th is of great interest. Perhaps I may be permitted to comment upon a few points which seem to be of practical importance.

Dr. Coombs states that cardio-vascular syphilis does not declare itself by symptoms until about twenty years after the primary sore. That is approximately true in so far as pathognomonic symptoms are concerned, but it is not true in respect of clinical signs. These signs may be slight, and they may suggest at the first glance nothing more than a vague "something" wrong with the heart; but that is the time when it is most important to make a diagnosis—not so much of any particular heart lesion, as of the syphilis itself. It is in this stage, while the cardio-vascular damage is slight and reparable, that adequate therapeutic measures can prevent a future grave aortitis and aortic valve incompetence. Properly considered, syphilis is—even from before the appearance of the primary sore—a cardio-vascular disease. It is that, first, last, and all the time. A careful examination of patients suffering from early syphilis—from the sero-negative primary till the end of the secondary stage—will reveal in a very high proportion some clinical evidence of cardio-vascular damage. And it has always to be borne in mind in this connexion that the visceral damage wrought by syphilis is invariably very much more severe and extensive than clinical signs would suggest. Another point is that in every case of cardiac or vascular disorder syphilis should be considered, and great pains should be taken to decide as to whether or not it is an etiological factor in the case.

I would endorse most strongly the plea for a very careful consideration of the patient's history, that of his wife, her pregnancies, and their children. Both marital partners and the progeny should be examined, both clinically and serologically. In the presence of a negative Wassermann test, and indefinite clinical findings in a patient, a syphilitic etiology may be uncovered by investigating the family. There is, I believe, no such thing as a completely asymptomatic syphilis. The ensemble may give a clue which the therapeutic test will clinch. A caution about the use of potassium iodide is necessary. Iodides have no treponemicidal power, their sole function being the dissolution, or prevention of formation, of fibrous tissue. The pathological picture must be visualized in every case, because, if the fibrous tissue is exercising a protective function—for example, in aneurysm, where it may be the sole rampart between the patient and death from rupture—dissolution of it by the exhibition of iodides may precipitate a fatal issue. If the fibrosis is non-protective, iodides should be given in large doses—90 grains of the potassium salt daily.

Treatment should invariably be commenced with a fat-soluble bismuth salt, such as bivatol, given intramuscularly in 2 c.cm. doses twice weekly for eight weeks. This should be succeeded either by myosalvarsan intramuscularly once weekly for eight weeks, or, if trouble is experienced, by the oral administration of stovarsol. The whole course should last for seventy-two weeks without any rest period, the patient receiving 23.25 grams of myosalvarsan and a quantity of bivatol equivalent to 5.12 grams of the elemental bismuth. When these remedial agents are available, and are tolerated, the giving of mercury is only a waste of time. It is indeed astonishing to find that no mention of bismuth is made either by Dr. Coombs or in the leading article on the subject on page 919.—I am, etc.,

December 1st. E. TYTLER BURKE,
Director of Municipal Clinic (V.D.),
City of Salford.

AVERTIN ANAESTHESIA.

SIR,—The discussion on avertin in the *Journal* has focused attention on some important questions, but in the end the relative value of this drug can be adequately tested in one way only—namely, by comparing it with other anaesthetics over large records of *comparable* cases. In a recent paper[1] on avertin anaesthesia I suggested that "at the present moment our lack of knowledge tends to place us in the invidious position of refusing the services of one anaesthetic because of the dread of immediate disaster, when in reality, by our choice, we may inadvertently be multiplying many times the total risks to our patient. Only by an assessment of the total advantages and disadvantages, including the risks per 1,000 cases, both immediate and from such subsequent causes as toxaemia and lung complications, inherent in each anaesthetic, can we hope to escape from the present unscientific position in which the choice of anaesthetic must often be largely a matter of personal bias on the part of operator or anaesthetist." In goitre operations, for which avertin has been increasingly employed, there should already be material for instituting a comparison between this and alternative drugs. With the object of obtaining such comparable figures, I have for some time been employing avertin as the routine procedure in my gynaecological department in Edinburgh, with results that now seem to justify some tentative conclusions. Up to date we have 743 successive and unselected operations with four deaths, a mortality of just over 0.5 per cent. Our previous mortality in 1,799 successive cases with ether alone or combined with chloroform as the routine anaesthesia was 34, or 1.9 per cent., which accords generally with the published experience of other gynaecological clinics. Thus, the Royal Samaritan Hospital for Women, Glasgow, during 1928 had a mortality of 31 in 1,836 operations—that is, 1.7 per cent.—and during 1929 a mortality of 34 in 2,598 operations, or 1.3 per cent.[2] Dannreuther[3] in New York had 19 deaths in

[1] *Lancet*, May 31st, 1930, p. 117.
[2] *Medical and Clinical Reports*, 1928 and 1929.
[3] *Surg., Gynecol. and Obstet.*, October, 1930, li, 522.

1,000 successive operations—that is, a mortality of 1.9 per cent.

In this place I cannot give the complete data, and must be content with stating that we are coming to conclude that the use of avertin as the "basal anaesthetic," combined with ether in reduced quantity as a supplemental anaesthetic, has contributed to the lowering of our mortality:

(*a*) By *the reduction of post-operative pulmonary complications*. In 743 operations there were three instances of bronchitis or broncho-pneumonia with one death after an operation for prolapse in a woman with toxic goitre and debility. This is the only case in which death occurred after an operation other than an emergency procedure involving a "life or death" decision. Dannreuther, in 1,000 cases, records seventeen post-operative pulmonary complications with four deaths. As I have stated, we employ ether in practically all cases, and it is our impression that a main factor in the reduction of these complications is that with avertin there is an almost complete absence of vomiting during or immediately after the operation, and a consequently decreased risk of inhalation of septic matter. In this connexion Dannreuther states that "eight of the twelve pneumonias developed in ward patients to whom anaesthetics were administered by less experienced anaesthetists." Our experience leads us to the view that such contingent risks are reducible with the avertin-ether procedure.

(*b*) By *the reduction of post-operative gastro-intestinal complications*. There have been no cases of acute dilatation of the stomach, paralytic ileus, etc.

(*c*) By *the reduction of post-operative sepsis*. This we believe to be related to the absence of post-operative sickness and the trauma of straining, a factor of supreme importance in abdominal surgery, and in plastic operations on the pelvic floor. To the above-mentioned considerations must be added the great advantages which, in comparison with ordinary inhalation methods, avertin possesses in the ease and comfort which it brings, both to the induction of the anaesthesia, and the post-operative sensations of the patient.

Finally, I should state that we employ the drug in a ratio of 0.1 gram per kilo of body weight, preceded by a preliminary hypodermic injection of 1/8 grain of a morphine salt.—I am, etc.,

Edinburgh, Dec. 1st. JAMES YOUNG.

SIR,—In your issue of November 22nd Mr. Basil Hughes states that, so far as he knows, the properties of avertin as a general anaesthetic, especially for routine work, were never claimed. This suggests that Mr. Hughes is unacquainted with the German literature. If he will refer to this literature he will find several papers in which it is stated that it was used as a general anaesthetic in unselected cases—for example, Haas (*Deut. med. Woch.*, 1927, liii, 1375) describes a hundred cases, which he divides into four groups. In 23 per cent. a good effect was obtained by avertin alone; in 29 per cent. avertin alone is said to be satisfactory; in 42 per cent. ether was required late in the operation; and in only 6 per cent. was it necessary to use ether at the commencement of the operation. The makers of tribromethyl alcohol state, in an advertisement of October, 1930: "Avertin fluid—the anaesthetic for rectal administration."

Mr. Hughes also writes, referring to avertin, that "by its use other drugs necessary to complete anaesthesia can be used in amnesic dosage, which avoids their inevitable toxic effects following major operations in which they are used alone." This kind of unprecise language I find a little difficulty in dealing with, because I do not know what an amnesic dose of chloroform or ether may be, though it might be easy to enunciate it for hyoscine; also, the "inevitable toxic effect" of, for example, ether, must be compared with the variable effect, the lack of control, the respiratory depression, the possibility of liver and kidney damage, and the delayed excretion, all or any of which may be features of avertin anaesthesia. Chloral hydrate per rectum was once much in vogue as an anaesthetic for children, especially in France; paraldehyde and many other narcotic substances have also been used, and, as I write this, a long article is before me in which the writer advocates ordinary ethyl alcohol, not the tribrom variety, for producing general anaesthesia.

In conclusion, I venture to believe that no valid evidence has been produced to alter the opinions expressed in my original paper, and I am given to understand that confirmatory evidence of these may be shortly forthcoming both from Germany and from America.—I am, etc.,

Cambridge, Nov. 27th. F. B. PARSONS.

SODIUM AMYTAL.

SIR,—I have just finished reading the two very interesting articles on sodium amytal in the *Journal* of November 29th (p. 897). I wish to report the following case of respiratory failure after using the drug.

A woman, aged 55 years, apparently of satisfactory health and of good medical history, was admitted to the Dreadnought Hospital, Greenwich, under the care of Mr. Percival P. Cole. She was operated on for severe pains in the abdomen, chiefly situated in the right iliac region. A laparotomy was performed. The appendix, which was bound down and inflamed, was removed, and numerous adhesions in the coeliac and hepatic regions were severed. Other parts of the abdomen were explored, but nothing unusual was found. The anaesthetic given was 1 gram of sodium amytal, under strict aseptic precautions, together with nitrous oxide and oxygen, supplemented by a little ether in order to get sufficient abdominal relaxation. The quantity of gas and oxygen given was small, as compared with a case which had not had sodium amytal, as also was the amount of ether. The time taken for the injection was nine and a half minutes. The patient behaved perfectly until she was about to be returned to the ward after the operation. It was then noticed that she was becoming cyanosed, and that her respirations had practically ceased. The gas and oxygen had been stopped as soon as the peritoneum had been closed. At that time the pulse was good, blood pressure normal, pupils normal in size, and the respirations inclined to be shallow.

At the moment of respiratory failure artificial respiration was administered, oxygen being given at the same time. The breathing returned, but stopped as soon as this was discontinued. This was repeated several times, and the same thing happened. It was then decided to pass an endotracheal catheter, and attach it to the gas and oxygen apparatus. Oxygen with 5 per cent. carbon dioxide was then given in this way, which at once restored the respirations. It was due to this treatment that the patient was kept alive for the next eight hours. The pulse rate was good, in both volume and rate, the blood pressure a little below normal. The pupils were widely dilated, and had a definite lustre. Cardiac stimulants were given on the operating table, adrenaline 10 mm. and coramine 1 c.cm. Thyroxine 1 c.cm. was given two-hourly in order to stimulate the basal metabolism, and thus help to get rid of the drug a little more quickly; but this had to be stopped after the fourth injection, as it was affecting the pulse rate. At the end of six hours atropine, 1/100 grain, was given hourly, as the chest showed signs of becoming congested; later on it was given four-hourly, until she showed definite signs of returning consciousness.

At the end of eight hours the pulse first showed signs of becoming weak. At this stage normal salines were given per rectum hourly, black coffee being substituted for the salines at intervals. During this treatment her condition so improved that the catheter was removed, and it was found that the oxygen and the carbon dioxide could be discarded altogether. Her corneal reflex had returned, and she had started to groan a little, at the same time making slight movements with her face. To try and establish the improvement 300 c.cm. of normal saline were given intravenously, and from this time she never looked back. At the end of sixteen hours she spoke for the first time, and then settled down again. The salines were then discontinued. A few hours later she became so restless that she was given 1 c.cm. of omnopon in order to make her sleep again, which she did for the next few hours. On returning to consciousness she knew nothing of her condition, and could not understand the pain in her abdomen. She ran a temperature for the next few days, which in time settled down, and an uneventful recovery ensued, the patient never knowing how ill she had been.

This case is of interest, as in all probability the patient would have died if it had not been for the passing of the endotracheal catheter and the administration of oxygen and carbon dioxide. It was by this means alone that her respirations were controlled. The salines and the black coffee, all of which she retained, stimulated her after the catheter was removed, and thus gradually restored her to full consciousness. I wish to thank Mr. Cole for giving me permission to report the case.—I am, etc.,

London, W.1, Dec. 2nd. RONALD JARMAN.

DIATHERMY ENUCLEATION OF TONSILS.

SIR,—It is an ancient but discredited method in controversy to wrench from writings such items as suit us, and to leave those that militate against us discreetly alone. This is what Dr. Warner Collins has done in his letter disagreeing with my warning about too extensive diathermy coagulation of the tonsil at one sitting. May I suggest to him that he turn once more to my book on *Diathermy* and read the sections dealing with this subject in their entirety, dwelling particularly upon page 66, line 1 et seq., and pages 74 and 75?—I am, etc.,

London, W.1, Dec. 6th. DAN MCKENZIE.

MIGRAINE.

SIR,—As one who has studied migraine (hemicrania) for many years, may I remark on the discussion on the treatment of headache which took place at the November meeting of the Chelsea Clinical Society (*British Medical Journal*, November 29th, p. 907)? Doubtless this was an "informal discussion," but I was a little surprised to find no reference in the report to the *periodicity* of hemicrania. This weekly, fortnightly, monthly, or other rhythm of the headache is one of the most characteristic things about it.

Dr. Feiling said that "a line of treatment was now being pursued on the hypothesis that the condition was due to some liver deficiency." This interested me, because I contributed a letter to the *British Medical Journal* of February 5th, 1927, in which was a tentative theory of the production of periodic hemicrania, a portion of which I should like to quote:

> "Let it be granted that a toxaemia is the underlying condition (of which personally I have not the slightest doubt) and that the liver is the great organ of detoxication. The liver is constantly destroying poisons more or less perfectly in different persons; in some it detoxicates so perfectly that the poison never accumulates and they therefore never have headache. In certain less fortunate persons the liver traps the poisons less perfectly, so that some are always escaping over into the circulation. When the toxin accumulates beyond a certain concentration in the blood the syndrome of hemicrania is established. The exact period of this toxic situation may be one of seven days, or fourteen or thirty or forty-two, giving the weekly, fortnightly, monthly, or six-weekly headache, as the case may be. In other words, the rhythm of the headache is dependent upon a pre-existing rhythm in the detoxicating capabilities of the liver."

I noted with satisfaction that there was no serious advocacy of the view that the chief factor in hemicrania is of a psychic nature.—I am, etc.,

Chiswick, W.4, Nov. 29th. D. F. FRASER-HARRIS.

A SUGGESTED HORMONIC CAUSE FOR CYSTIC CONDITION OF THE OVARY.

SIR,—The subject of the interaction of the ovary and the anterior lobe of the pituitary body is very interesting from a physiological point of view. It seems to me, moreover, that such interaction might possibly be the basic cause of cystic condition of the ovary.

The anterior pituitary lobe has been described as the "motor of the ovary." It produces two hormones, one of which stimulates ovulation and maturation of the follicle, with the production of the follicular hormone. This last hormone has as one of its actions cornification of the cells of the vagina. The second pituitary hormone acts on the Graafian follicle and "luteinizes" that structure, with the production of the luteal hormone, which in its turn represses any further ovulation during the latter half of the twenty-eight-day cycle. In association with the follicular hormone, the luteal hormone causes progestational development of the endometrium. It appears that the corpus luteum thus formed can only be destroyed by these hormones if they are in concentration.

The interesting point to me is as follows. If the anterior lobe of the pituitary body is capable of effecting this physiologically, it seems that it may "run riot," and that the cornification and luteinizing effects may proceed to the pathological cystic condition. On the other hand, there appears to be a therapeutic agent available, which might be employed in the idiopathic uterine haemorrhage of young women, since, if a persistent corpus luteum should result from the use of this agent, uterine haemorrhages would cease. Even so, there would still be the risk of the occurrence of a cystic ovary, possibly at the menopause.—I am, etc.,

Port Royal, Jamaica, Nov. 18th. JOHN N. MCINTOSH, M.B.Ed.

PHLEBITIS AND EMBOLISM.

SIR,—I am interested in Dr. Jeudwine's letter in the *Journal* of November 29th (p. 933), and am writing for further information.

I understand that a primary embolism may occur in the lung without any thrombus in the veins of the leg; but what proof is there that, in a case of phlebitis in the leg followed by pulmonary embolism, the latter is an independent deposit, and not a clot carried up from the leg? I admit the strange immunity of those who, after suffering for days with phlebitis, have walked into my surgery to be hurriedly forced into bed, where recurrent deposits of thrombosis have occurred in their legs. The unhappy recollections of pulmonary thrombosis following operations for a cold appendix or a clean hernia make one think twice before advising the ambulatory treatment for phlebitis.—I am, etc.,

Acton, Nov. 30th. J. T. S. GIBSON.

CANCER OF THE TONGUE.

SIR,—In my article on cancer of the tongue appearing in the *British Medical Journal* for November 8th, I credited Stevenson of Dublin with being the first to employ the principle of interstitial implantation of radium. I have since been informed that while Stevenson made the first interstitial applications with radium in hollow needles he was not the first to employ the principle of interstitial irradiation. I am informed that Finzi and others inserted tubes of radium in the tumour-bearing areas as early as 1909, and it is believed that this method was probably first employed by Dominici. I offer my apologies for this error.—I am, etc.,

New York, Nov. 22nd. DOUGLAS QUICK.

NOCTURNAL INCONTINENCE IN CHILDREN.

SIR,—My attention has been drawn to Dr. Pereira Gray's memorandum in the *Journal* of November 29th, on the subject of nocturnal incontinence in children. I wish to endorse the remarks made on the futility of most recognized remedies for this distressing complaint, whether by the administration of belladonna, by circumcision, reduction of the acid reaction of the urine, removal of tonsils and adenoids, abstention from liquids after 5 p.m., lying on hard boards, or waking the patient at stated intervals. There may be cases of bladder irritability due to threadworms, for instance, but these are rare. Excluding the existence of organic nervous diseases, the bulk of cases fall into two groups. The first includes children who have never been properly educated in bladder control, which is usually established at two and a half years of age. Some authorities consider bed-wetting to be a reversion to infantile habits because of its frequency in "over-mothered" children. The second group includes the type which gives the greatest difficulty in treatment. Such children are usually nervous and excitable; they are often worried about school lessons or they may be jealous of a new arrival in the family circle. Disorders of sleep such as restlessness, bed-wetting, talking or even walking in sleep are sequels, and are due to an over-active subconscious mind. One of the best ways of calming the subconscious is by mental suggestion and auto-suggestion, which can be practised without any elaborate technique. It is important, however, to find the cause and to remove it, otherwise it may be found that although the bed-wetting is cured it may be replaced by some other abnormal trait.

I have cured many cases of nocturnal enuresis within a few weeks of commencing this treatment. The method is as follows: It is essential first of all to obtain the confidence of both parent and child, and to explain to the

former that punishment and even reproach are not only unfair to the child, but are likely to aggravate the condition. The mother should be told that the bed-wetting occurs during sleep, and is not done intentionally as many believe. The next step is to ask the mother to talk to the child at bedtime, and with suitable emphasis say: "Now, you're going to have a dry bed to-night." This is reinforced by the child repeating over and over again the words "I am going to have a dry bed to-night." The child is given a "dry night" chart on which he places a star for each success achieved in the appropriate space (cf. diagram); a blank space is left when the child fails to have a dry bed.

	Dry Nights (*)			
Sunday				
Monday			*	
Tuesday				*
Wednesday		*		
Thursday				*
Friday...				
Saturday			*	*

This scheme has the double advantage of changing the mother's attitude towards the child and also gives the child an incentive to overcome his difficulty. It cannot be too strongly emphasized that there must be absolute co-operation between the doctor, parent, and child before success can be obtained. After the first interview the parent may have grave doubts as to her doctor's sanity, but she soon discovers that there is method in his madness, and that by patience and encouragement the incontinence entirely disappears.—I am, etc.,

Harrow, Dec. 1st. T. W. HILL, M.D.

MEDICAL RECIPROCITY WITH FRANCE.

SIR,—Dr. Samways, in your issue of November 22nd, suggests that the time is ripe for medical reciprocity with France. His arguments are based on erroneous data. Things have changed indeed to-day, as he says, but in a direction quite contrary to the basis of his argument. Having practised his profession on the Italian frontier, he should know that France harbours at least a million Italians; no reproach to him for not knowing that at the other extremity of France there are many thousands of Poles, notably in the district Arras, Lens, Bethune, not to mention districts in Central France, where the French language is not spoken among Polish colonists.

Two weeks ago 800 candidates were examined in intermediate subjects for the State Diploma; exactly 68 per cent. were not French. The Minister of Public Instruction is most seriously engaged in his preoccupation to find a remedy for the outpouring of qualified students of his own nationality who are destined to starvation in a profession more overcrowded than that of any other nation. Abernethy's words to the new students of my hospital apply: "God help you all! what will become of you?"

There is, however, to my mind, a more serious side to this affair. Any compatriot of mine would do well to acquire from a reliable and serious source information as to the conditions under which he would be obliged to practise his profession in France. Should he not understand the full import of the word "dichotomy," let him inquire. (In justice let it be said that there exists a league against dichotomy here.) Would he possess his body and soul in independence, let his eyes be widely open before he throws himself into a whirlpool.

English practitioners are not wanting in Paris. There exist able men of British nationality who easily assure the medical needs of our workers here—bank clerks, shop assistants and managers, factory workers, governesses and nursemaids, including week-enders in the smaller hotels. The non-working American colony has its own doctors. The travelling American has the name of a medical practitioner in his pocket before the Statue of Liberty is astern, and for the most part it is the name of a Frenchman. Patients are recommended, almost without exception, to consult a French practitioner by their London physician in all the great spas of France. There is no prospect of hospital practice for the foreigner; even our hospital in Paris is staffed by Frenchmen.

For these reasons I am sure that the time is neither ripe nor propitious for reopening the question of reciprocity, and I am equally sure that it would be turned down. I may add that a Frenchman *or anyone else* can practise medicine in England without passing the Conjoint Board examination or any other examination, so long as a stupid public entrusts itself to him. Reciprocity of quite another kind is needed, and very sadly needed, but to this the British authorities do not seem able to give a favourable response. No, Sir, the moment would be ill chosen to raise the question of medical reciprocity, and in my opinion an Englishman would be ill advised to avail himself of it if ever it were granted.—I am, etc.,

Paris, Nov. 24th. E. GERALD STANLEY.

MOTOR DRIVERS AND VISION.

SIR,—I read with much interest the extremely interesting article on the above subject in the *Journal* of November 29th (p. 915) by Mr. Bishop Harman. More especially was I interested in Mr. Harman's remarks on the question of night driving by myopes. My personal experience bears out fully his contention. I wear lenses of −13.5 dioptres, and have driven very many thousands of miles without trouble or mishap, but I always confine my driving to the daytime. Darkness is literally and definitely my *bête noire*. I realize my deficiency, and as far as possible avoid night driving.—I am, etc.,

December 5th. LUX DIEI MIHI.

LOTTERIES, SWEEPSTAKES, AND HOSPITAL FINANCE.

SIR,—Dr. J. S. Manson put the matter in a nutshell when he said that the medical profession will never consent to cure physical disease by propagating moral disease. A word from the British Medical Association would nip this matter in the bud. I endorse every word of Dr. Manson's letter, and only hope that the editors of our daily press have seen it also.—I am, etc.,

JOHN N. BEADLES, M.B., B.S.

Streatham, S.W.16, Dec. 6th.

Obituary.

EWAN RICHARDS FRAZER, M.B., B.CH.

DR. E. R. FRAZER, who died on November 15th, was born in Sydney in 1857. He received his medical education at Oxford and the London Hospital, graduating M.B., Ch.B. in 1898, and obtaining the diplomas M.R.C.S., L.R.C.P. His special interest lay in pathology, and he published articles on this subject. We are indebted to Professor Arthur Thomson for the following tribute.

Among the two generations of men who have passed through my hands, few have made a more lasting impression on me than Ewan R. Frazer. He was one of the first colonials to study medicine at Oxford; that was in 1893. The conditions were then beginning to improve; the anatomical department, having passed through the evolutionary stages of a "hut" and then a "tin shed," had finally materialized in stone in its present quarters. The entry for that year was the then record number of forty-two students. Many of those who were students at that time have become successful practitioners, and not a few have risen to positions of distinction; for example, Buzzard has become our regius professor of medicine. In this group I have no hesitation in saying that Frazer was marked out for a brilliant career. Gifted with intellectual powers of a high order, he was further well endowed with private means, which rendered him independent of practice. He was thus in a position to indulge his tastes in regard to the scientific aspects of his adopted profession. This trend of his career was, no doubt, in some measure due to his intimate association with the late Professor James Ritchie (subsequently of Edinburgh), who was then, in collaboration with the late Sir John Burdon-Sanderson,

engaged in promoting the teaching of pathology in Oxford. So, too, his intimacy with Professor Dreyer, who was at that time working at Oxford, gave a bias to his inclination toward the scientific side, with the result that he made this field of research the dominant influence in his early career. He soon made for himself the reputation of being one of the younger men marked out for distinction in this particular branch of study. Considerations of another kind, however, arose which compelled the transference of his activities and responsibilities in other directions, and so his promising scientific career was cut short, though, as I know, his interests in medicine were paramount till the day of his death.

The one incident in his life which has endeared his memory to all of us in Oxford who are concerned with the interests of the medical school is the fact that it is to his bounteous generosity that we owe the erection of the first pathological department in 1901. While still an undergraduate he handed over to me a cheque for £5,000, to use as a lever, to enable us to stimulate the University, at that time sadly in need of funds, to provide for the necessities of our growing medical school. In those days there were many who were opposed in one way or another to the development of such a school. Experience had taught us that the antivivisectionists were active, but happily, by the practice of judicious methods, the opposition was disarmed. The University found ways and means to supplement Frazer's benefaction, with the result that pathology was equipped with a laboratory worthy of Oxford. Therein Ritchie, then appointed professor, continued his teaching until he became professor of bacteriology in Edinburgh. Thereafter Professor Dreyer, his successor, worked there until recent times, when through the benefaction of the Sir William Dunn Trustees he was enabled to avail himself of the larger and more commodious department, opened in 1927, the original pathological buildings being taken over by the professor of pharmacology, Dr. Gunn.

Frazer's gift proved invaluable at a very critical period in the history of the school, for without his generous aid our progress might have been long delayed. We owe much of our success to the generous impulse of an undergraduate who recognized so clearly what the pressing needs of the school were.

Of Frazer himself little need be said. He was of the type that does not make friends readily, but after the barriers of mere acquaintance had been broken down his friendship proved itself to be loyal, steadfast, and generous. He was a man of action rather than words. He took a broad view of things, and his interests were wide. Very sympathetic, he was ever helpful to those in need, and his hand was as generous as his heart. His latter years were clouded by the death of his eldest son, who was killed before his eyes by an accident in the Alps. The lad had a brilliant career before him, and the stricken parents endowed a scholarship at Balliol in his memory. Dr. Frazer leaves a widow and two children.

Dr. RALPH WILLIAM WILSON, who died in a London nursing home on November 21st, was born at Holy Island, Northumberland, in 1853. He graduated M.B., C.M. at Edinburgh in 1877, and proceeded M.D. ten years later. He came of seafaring stock, and one of his first appointments after graduation was that of medical attendant to a nobleman on a voyage round the world. For some time he assisted the late Sir William Gowers, and, indeed, whilst abroad on another voyage, was recommended by him for a court appointment. Dr. Wilson began practice as an assistant in Surbiton, but after several years there his friend Sir W. Thiselton-Dyer, director of Kew Gardens, persuaded him to transfer to Kew, where he remained in practice for forty years. It was a source of great delight to him that he had so much scope in the Gardens for his botanical researches. He was a Justice of the Peace, and was twice president of the Richmond Athenaeum. His connexion with the British Medical Association went back to the days of the old Richmond Division. He resigned in 1913 because of his disagreement with the terms of the National Health Insurance Act; but he was very enthusiastic over the new Richmond Division, and spoke at the inaugural meeting last January in favour of forming a Division of great strength. Unfortunately, illness prevented his attendance at any further meetings. The loss of his keen intellect and long experience is a severe one to the district in which he resided. He was buried at Holy Island on November 26th, and a memorial service was held at St. Luke's Church, Kew Gardens, which was attended by a large congregation, consisting of his medical colleagues in Kew, his old patients, and numerous friends.

Universities and Colleges.

UNIVERSITY OF OXFORD.

DR. FREDERICK AUGUSTUS DIXEY, Emeritus Fellow of Wadham, has been elected to an honorary Fellowship in the College.

UNIVERSITY OF CAMBRIDGE.

THE Raymond Horton Smith prize for the best M.D. thesis submitted during the academic year 1929–30 has been awarded to P. M. D'A. Hart, M.A., M.B., of Gonville and Caius College.

Dr. E. G. Holmes (Christ's) has been elected Fellow and tutor of Downing, the latter appointment to take effect from March 25th, 1931.

At a congregation held on December 5th the following medical degrees were conferred:

M.D.—W. H. Craib.
M.B., B.CHIR.—R. W. L. May, A. R. Banham, R. M. Bolam, S. McDonald.

UNIVERSITY OF BRISTOL.

THE following candidates have been approved at the examinations indicated:

M.D.—T. A. Brand.
FINAL M.B., CH.B. (*Part I, including Forensic Medicine and Toxicology*).—G. T. Bevir, R. N. O'D. Burns, R. G. C. G. Carlson, A. McD. Davies, G. M. Evans, *A. L. Eyre-Brook, †F. E. Fletcher, J. D. Hughes, H. James, J. Ridgway, §Frances N. Salisbury, †O. E. L. Sampson, §J. P. P. Stock; (*Part I only*), J. R. Gibbs. *Section II* (*in Group I only*): Eveline M. D. M. Collinson, Rowena M. Hickman.

* With distinction in materia medica, pharmacy, pharmacology and therapeutics, pathology, and forensic medicine and toxicology.
† With distinction in materia medica, pharmacy, pharmacology and therapeutics, and forensic medicine and toxicology.
‡ With distinction in forensic medicine and toxicology.
§ With distinction in pathology.

UNIVERSITY OF LIVERPOOL.

DR. H. E. ANNETT has been appointed to the Samuel Turner Research Fellowship for three years from January 1st, 1931.

NATIONAL UNIVERSITY OF IRELAND.

AT a meeting of the Senate held on December 4th Dr. Denis J. Coffey, President of University College, Dublin, was elected Vice-Chancellor of the University from January 1st, 1931, to December 31st, 1932. The degree of M.D. was awarded to Professor E. N. McDermott. A report from Dr. Coffey, as representative of the University, on the November session, 1930, of the General Medical Council was considered. Professor J. C. Saunders, University College, Cork, was appointed to represent the University at the Royal Sanitary Institute Congress at Glasgow in 1931. Dr. James R. Hackett was reappointed lecturer in dental surgery at University College, Cork.

ROYAL COLLEGE OF PHYSICIANS OF EDINBURGH.

AT the annual meeting of the College, held on December 4th, Sir Norman Walker, who presided, was re-elected President for the ensuing year. Drs. Robert A. Fleming, Robert Thin, Wm. Fordyce, Edwin Bramwell, Edwin Matthew, and A. Fergus Hewat were elected members of Council, and Dr. Robert Thin was nominated Vice-President.

At an extraordinary meeting held at the close of the annual meeting Drs. John Orr and William Fordyce were elected representatives on the Board of Management of the Royal Infirmary.

The College voted a sum of 1,000 guineas to the Royal Infirmary, Edinburgh, in response to its Bicentenary Appeal.

ROYAL COLLEGE OF PHYSICIANS OF IRELAND.

AT the monthly business meeting on December 5th Dr. Victor M. Synge was appointed Professor of Medicine in the schools of surgery of the Royal College of Surgeons in Ireland. It was decided to appoint from among the Fellows voluntary delegates to the Congresses of the Royal Sanitary Institute and of the Royal Institute of Public Health to be held in 1931. The representative of the College reported on the proceedings of the recent session of the General Medical Council.

Medical Notes in Parliament.

[FROM OUR PARLIAMENTARY CORRESPONDENT.]

THE House of Commons this week read the Unemployment Insurance Bill a second time and passed it through committee. The third reading was down for December 11th. The committee stage of the Education (School Attendance) Bill was continued on December 10th. On December 12th the first order was the Slaughter of Animals Bill.

On December 4th the Expiring Laws Continuance Bill passed through committee. A proposal to continue the Dyestuffs Act was defeated. During the debate Mr. Henry Mond remarked upon the importance of the dyestuffs industry to every form of research into organic chemistry. He contended that a great school of workers was needed for this research, not merely a few people in laboratories, and such a school could only be built upon a well-established and sound organic chemical industry. Lister began with the study of phenol and created the science of antiseptics, but phenol was simply another grouping of carbon atoms. Metchnikoff discovered the enzyme, which was based on carbon. Only by intense and wide study of organic chemistry were they likely to gain more knowledge of the enzyme. Salvarsan was based on carbon. So was the chemistry of the hormone and the chemistry of vitamins, as had been shown by Professor Starling and Sir Frederick Gowland Hopkins. A great school of English chemists had been built on the organic side, but far more remained to be done, and would not be done unless there was a real opportunity for men to go from the university into industry to continue their study of organic chemistry.

Conferences are expected at the Ministry of Health within the next ten days over the text of the Pharmacy Bill, which has lately been examined by professional organizations in the country. The Government has not yet promised to introduce the bill, which in any event is unlikely to be brought before Parliament till the New Year.

At the House of Commons, on December 3rd, a subcommittee of the Socialist Medical Association was formed to prepare a scheme for medical services during the "period of transition to a State service." Dr. Salter, Mr. Somerville Hastings, and Dr. Forgan were added to this committee.

Sir Charles Trevelyan announced, on December 8th, that Dr. Salter would be a member of a departmental committee to survey the present position of schools not in receipt of grants from public funds.

On December 8th Mr. Ramsbotham raised a case under the Asylum Officers Superannuation Act, 1909. In reply, Miss Susan Lawrence said the policy of the Government was to place the Act on a better actuarial basis. For some months actuaries had been making preliminary inquiries which she hoped would result in better superannuation schemes.

Hospitals.

On December 3rd, replying to Mr. Winterton, Mr. MACDONALD said that it did not seem to be necessary at present to appoint either a Royal Commission or a Select Committee to inquire into the advisability of making hospital treatment a State service. Local authorities had powers, under the Public Health Act, both to provide hospitals and to contribute to voluntary hospitals.

In reply to Mr. Gardner on December 3rd, Mr. GREENWOOD said that in 1928–29 local authorities were providing for 166 hospitals for tuberculosis, with 12,804 beds, at a cost of £1,165,000; 987 hospitals for acute infectious diseases, with 987 beds, at a cost of £3,620,000; and 80 maternity hospitals and 9 babies' hospitals, with 1,040 and 233 beds respectively, at a cost of £268,000. In addition, local authorities had aided 139 tuberculosis hospitals, with 9,298 beds, and 166 general hospitals with tuberculosis schemes, at a cost of £821,000; 26 maternity sections, with 279 beds, 64 maternity hospitals, with 1,336 beds, and 14 babies' hospitals, with 347 beds, at a cost of £114,000; and had also assisted venereal diseases schemes in 130 hospitals. One large general hospital, with 875 beds, and three relatively small accident hospitals, were provided by local authorities at March 31st last. Since that date 17 hospitals, with approximately 12,500 beds, which were provided under the Poor Law Acts, had been appropriated as general hospitals under the Public Health Acts; also three Poor Law institutions or infirmaries had been partly appropriated as general hospitals. Subscriptions or donations made by local authorities in pursuance of Section 64 of the Public Health Act, 1925, amounted in 1928–29 to £30,000. Contributions made by boards of guardians to public hospitals, with the consent of the Minister of Health, in pursuance of Section 38 of the Poor Law Act, 1927, amounted in 1928–29 to £38,000. Institutions formerly provided by Poor Law authorities numbered 73 wholly for the sick, exclusive of mental cases, with 40,000 beds, at a cost in 1928–29 of £4,316,000; and 652 general institutions (with a total accommodation of some 188,000) with 83,000 beds in infirm and sick wards, and at a cost of £8,880,900 in 1928–29.

Medical Certification and Pension Tribunals.

Mr. AITCHISON, on December 8th, replying to Mr. Wardlaw-Milne, said that appellants in pension cases might be, and frequently were, accompanied by their medical advisers at the hearing of their appeals. In almost every case the appellant brought a certificate from his medical adviser, which was carefully considered before the tribunal gave its decision. In cases where the appellant failed to bring a certificate, or the certificate was not sufficiently comprehensive, it was the usual practice of the tribunals to adjourn the hearing until the information required was obtained from the medical adviser, either by the appellant or, with the consent of the appellant, by the tribunal.

Opium.

Mr. SHORT, replying to Mr. Campbell on December 8th, said that the function of the Opium Advisory Committee of the League of Nations was to assist and advise the council of the League in dealing with traffic in opium and other dangerous drugs.

Small-pox and Vaccination.

Mr. GREENWOOD informed Mr. Groves, on December 9th, that he had no specific evidence that the incidence in any area of the type of small-pox at present prevalent in this country bore any close relation to the percentage of infants vaccinated in that area. The incidence of the disease was, however, almost entirely limited to unvaccinated persons or persons who had not been successfully vaccinated within recent years.

Vaccination and Encephalitis.

On December 9th Mr. GREENWOOD told Mr. Groves that 14 cases in which symptoms suggestive of disease of the central nervous system followed within a month of vaccination had been brought to the notice of his Department as having occurred during the twelve months ended September 30th, 1930. He was advised that 8 of these cases, 4 of which proved fatal, might be regarded as cases of post-vaccinal encephalitis. Of these 8 cases, 7 were vaccinated with Government lymph, and in 1 case there was no information as to the lymph used.

Veterinary Education.—Dr. ADDISON told Major Carver on November 27th that, besides the Royal Veterinary College, Liverpool University, the Royal (Dick) Veterinary College, Edinburgh, and the Glasgow Veterinary College provided veterinary education. In addition, the University Department of Animal Pathology at Cambridge, the Ministry of Agriculture's Veterinary Laboratory at Weybridge, and the station of the Scottish Animal Diseases Research Association, near Edinburgh, existed for the purpose of research in animal diseases. He said he was fully aware of the financial position of the Royal Veterinary College, and the Government had offered, on certain conditions, a grant of £150,000 towards a scheme of reconstruction costing £250,000, and were further prepared to contemplate an increase of the present maintenance grant when the reconstruction was completed. He trusted that, with the help which the College might be able to obtain from other sources, these grants would be sufficient to avert the closing down of the College, which would be deplored.

Awards of Pensions.—Mr. ROBERTS, on December 2nd, informed Major Carver that, during the twelve months ending last September, some 26,300 final pension awards were made. The number of officers and men medically re-examined at the instance of the Ministry of Pensions had been greatly reduced, and at the present time was not more than about 300 a week. There was no power, nor would it be in the best interests of pensioners, to make final awards in all cases without regard to whether they were suitable or not, but the policy of the Department was to give prolonged awards wherever justifiable.

Mentally Defective Children.—Replying to Mr. Day on December 3rd, Sir C. TREVELYAN said that there were, according to the latest returns, 32,775 educable mentally defective children ascertained by local education authorities in England and Wales. Of these, 28,598 were attending schools or other institutions. He was unable to give figures for ineducable children on a comparable basis, but was informed that the names of 3,270 children were notified to local authorities under the Mental Deficiency Acts during the year 1929, of whom 352 were sent to institutions. On December 9th Mr. JOHNSTON told Mr. Tran that the number of educable mentally defective children between 5 and 16 receiving instruction in special schools, classes, and residential institutions in Scotland was 3,938. He could not state the precise number of the classes, but the number of children in a class was limited to twenty. The statistical information available did not enable him to separate the expenditure on such instruction.

The Services.

HONORARY SURGEON TO THE KING.

SURGEON CAPTAIN R. J. WILLAN, M.V.O., O.B.E., R.N.V.R., has been appointed honorary surgeon to the King, in succession to the late Surgeon Captain A. R. Brailey, R.N.V.R., from December 1st.

DEATHS IN THE SERVICES.

Lieut.-Colonel George Eliott Cathcart, O.B.E., R.A.M.C., died in London on September 10th, aged 53. He was born on March 5th, 1877, the son of the late Major H. D. Cathcart, was educated at Bart's, and took the M.R.C.S. and L.R.C.P. Lond. in 1901. After serving as a civil surgeon in the R.A.M.C. for nearly a year, he entered that corps as a lieutenant on January 30th, 1904, became major on July 1st, 1915, and lieutenant-colonel on September 15th, 1926. He served in the war of 1914–18, was mentioned in dispatches in the *London Gazette* of July 4th, 1916, and March 12th, 1918, and received the O.B.E.

Lieutenant John Anthony Timoney, R.A.M.C., died in Egypt on September 8th. He was educated in the National University of Ireland, graduating as M.B., B.Ch., and B.A.O. in 1927, and entered the R.A.M.C. as lieutenant on October 26th, 1928.

Medical News.

THE Sections of Electro-therapeutics and Comparative Medicine of the Royal Society of Medicine will hold a joint discussion on radiological problems in man and animals, on Friday, December 19th, at 8.30 p.m.

A MEETING of the Royal Microscopical Society will be held in the Hastings Hall, British Medical Association House, Tavistock Square, W.C., on Wednesday, December 17th, at 5.30 p.m. Mr. S. C. Akehurst and Mr. J. M. Preston will read papers. At the annual general meeting of the society on January 21st, 1931, Professor R. Ruggles Gates will deliver his presidential address.

A COURSE of twelve lectures on "The Life of the Past" is being given by Dr. T. M. Finlay in the Lecture Theatre of the Imperial College of Science (Royal College of Science, Old Building), Exhibition Road, South Kensington. The course opened on December 8th, and the remaining lectures will be delivered on December 15th, 17th, and 19th, and on January 5th, 7th, 9th, 12th, 14th, and 16th, at 5.30 p.m. Admission is free.

A THREE months' course of lectures and demonstrations on clinical practice and in hospital administration will be given at the North-Eastern Hospital, Tottenham, by the medical superintendent, Dr. F. H. Thomson, on Mondays and Wednesdays at 4.45 p.m., and alternate Saturdays at 11 a.m., commencing on Monday, January 5th, 1931. The fee for the course, which complies with the requirements of the revised regulations of the General Medical Council, is £4 4s. A course may, however, be taken under the old regulations at £3 3s. Practitioners desiring to attend the course of instruction are required, before attending the hospital, to pay the requisite fee to the medical officer of health, London County Council, Public Health Department (Special Hospitals), Victoria Embankment, E.C.4, giving their full name and address.

PARTICULARS of the lectures and demonstrations arranged for next week by the Fellowship of Medicine will be found in our Diary of Post-graduate Courses, published in the *Supplement* at page 260. Copies of syllabuses and tickets of admission can be obtained from the Fellowship, 1, Wimpole Street, W.1. The list of special courses arranged for 1931 is now available.

ON December 4th the autumn dinner of the Irish Medical Schools' and Graduates' Association was held at the Piccadilly Hotel, with the president, Dr. W. P. Kennedy, in the chair. After the usual loyal and patriotic toasts had been honoured, Dr. J. Howard Humphris, in proposing the health of the guests, said that they wished to offer them a whole-hearted welcome—indeed, all that was meant by the term "Irish hospitality." Speaking especially of the guest of the evening, Sir Frederick O'Connor, Dr. Humphris said that he was soldier, diplomat, explorer, and even "film star," and wherever he had been he had always upheld the tradition of his native country. Sir Frederick O'Connor said that although he was a gunner he had had much experience of doctors, and he admired the profession of medicine for its universality and its humanity. He gave instances of two occasions, in Tibet and in Persia, when the prestige of the British nation had been unmistakably established in a hostile atmosphere by the good work and sympathetic attitude of his medical officers. In reply to Dr. William Doolin, who proposed the toast of "The President and Association" with enviable brilliancy and wit, Dr. W. P. Kennedy said that the association stood for unity and guidance of Irish doctors who, settling in England, might have initial difficulties in their new environment; he urged all new graduates to get in touch with it as soon as they reached England. Helped by the friendship and experience of more sophisticated exiles, they were assured that their problems would meet with a speedy solution. An enjoyable programme of music was provided by Miss Alice Lilley, Miss Kathleen O'Hagen, and Mr. Ernest Bertram, whose songs brought the air and the verdure and the romance of the green isle very near to their audience. Later in the evening two of the guests further entertained the company with songs and stories, after which the company went downstairs to "chase the glowing hours with flying feet."

IN and after 1930 one or more scholarships of the value of £300 a year for five years may be awarded annually by the Government to suitable candidates of African birth for the purpose of studying medicine in the United Kingdom. The candidate must undertake to return to practise in British West Africa immediately on the successful completion of his studies, but he may be allowed to postpone his return, at his own expense, for a maximum period of three years in order to acquire additional professional qualifications, and on the expiration of the permitted period he will be granted a first-class passage to British West Africa.

WITH the approval of the chairman of the London County Council, Mr. R. L. Guthrie, coroner for the eastern district, has appointed Dr. Percy Bernard Skeels, solicitor, Mr. W. B. Purchase, coroner for the northern district, has appointed Mr. Francis Danford Thomas, barrister-at-law, and Mr. S. I. Oddie, coroner for the central district, has appointed Dr. Francis Temple Grey, barrister-at-law, to act as their respective deputies.

IN response to its appeal, first launched five years ago, the Middlesex Hospital has received £374,000. A further sum of £249,000 will be required to complete the enlarged scheme of rebuilding.

THE Leprosy Commission set up by the League of Nations will work in close contact with the Congress of the Association for Tropical Medicine in the Far East, which is now meeting also at Bangkok. At this session the Commission will endeavour to lay down the principles for combating leprosy just as the Malaria Commission did for malaria. It is hoped that it may be possible to evolve certain principles of action in harmony with the experience of clinicians, hygienists, and laboratory workers. The work of the Commission has been prepared by its secretary, Dr. Burnet, who, in the course of visits to leper colonies and interviews with leprologists in London, the Scandinavian and Baltic countries, France, the Mediterranean countries, the South American Republics, India, the Malay States, the Philippines, and China, has noted a series of observations.

THE annual report of Livingstone College for the year 1929–30 contains fresh evidence as to the value of the educational work which is being carried on in that institution. More than 1,100 missionaries have received training there, and some return later for further study. An appeal is being made for £800 to replace worn-out equipment, and to renovate the structure of the house. The full session, from October to June, comprises three terms; those who are unable to undertake this can be admitted for a six months' or a three months' course. An intensive course, consisting of lectures on the care of health in the Tropics, is given three times a year—in March, September, and December—lasting three days. These lectures are open to any who are expecting to work in tropical countries. Further particulars may be obtained from the principal, Dr. Tom Jays, Livingstone College, Leyton, E.10.

THE centenary of the birth of Jules Émile Péan, the celebrated surgeon to the Hôpital St. Louis, Paris, who died in 1898, was celebrated at the Académie de Médecine on November 25th, when his eulogium was pronounced by Dr. Jean Louis Faure, professor of clinical gynaecology in the Paris faculty.

PROFESSOR HANS FISCHER of Munich has been awarded the Nobel prize for chemistry.

THE title of doctor *honoris causa* has recently been conferred by the University of Liège, on Professor Calmette, of the Institut Pasteur, and on Dr. Louis Lapicque, professor of physiology at the Sorbonne.

THE centenary of the foundation by Lucas-Championnière of the *Journal de Médecine et de Chirurgie Pratiques* was recently celebrated in Paris.

Letters, Notes, and Answers.

All communications in regard to editorial business should be addressed to **The EDITOR, British Medical Journal, British Medical Association House, Tavistock Square, W.C.1.**

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QUERIES AND ANSWERS.

Keeping Fit in Hot Climates.

LIEUT.-COLONEL F. W. W. DAWSON (M.O.H., Christchurch, New Zealand), replying to the inquiry of "C. H. B." in the *Journal* of July 26th (p. 168), denies that total abstainers are the first to go sick in a hot climate. He states that in 1901–2, while doing hospital duty at Kroonstaad, where there were many enteric cases, four of his colleagues died from enteric fever within four months. Neither then, nor when he was again in South Africa from 1904 to to 1908, was he off duty for illness, though he has been a lifelong abstainer. He adds that he has also served continuously for eight and a half years in India, Burma, and Mesopotamia, and for one year in Sierra Leone. He has never had malaria, dysentery, or enteric fever, though he had one week off duty in India with dengue fever. He writes: A small quantity of alcohol is pleasant to those who are accustomed to it, but it should never be taken before sunset. It appears to relieve the alleged monotony of tropical life, and to improve the outlook on things in general. Any excess of alcohol, however slight, and particularly if not very well diluted, is definitely prejudicial to health in a warm climate. It increases the tendency to infection and definitely lowers the resistance of the body to these diseases when infection has taken place. Alcohol is a predisposing factor in heat-stroke. While it is possible for an abstainer to get sunstroke through carelessness in the use of a helmet, I have never heard of an abstainer suffering from heat-stroke. The suggested covering of the lower abdomen is sound, but difficult to put in practice, since most persons throw off the covering in their sleep. I never found it necessary to take violent exercise. I played golf, a few sets of tennis, and took light boating exercise or swimming when I felt I would enjoy it, but I certainly never made a fetish of exercise.

Income Tax.

Honorary Appointment and Expenses; Research Studentship.

"C. C." was, until November 16th, acting as unpaid house-physician; on October 1st he was appointed a demonstrator of pathology at £300 per annum, and was awarded a research studentship of £275 per annum. He asks for information on various points, as indicated in the following reply.

*** Studentships are not exempt from tax unless they are "held by a person receiving full-time instruction at a university, college, school, or other educational establishment"—Section 28, Finance Act, 1920. The studentship in question does not apparently fall within the exempted class. If research on any defined lines is a condition of holding the studentship, the expense of supplying the necessary materials, etc., would be deductible for purposes of the assessment. The expense of running a car would be allowable only if necessarily incurred in carrying out the duties of the office—not, for example, incurred in going to the place where the duties are carried out. The cost of furnishing and equipping a consulting room would be capital outlay, but the rent and similar annual expenses would be deductible from the amount of the consultation fees earned. If there was no assessable income from the appointment as house-physician, the payments to a locumtenent for doing that work are not allowable. The expenditure on medical journals and societies can be deducted if the appointments are held on the condition (expressed or implied) that that expenditure shall be incurred.

Car Obsolescence Allowance.

"M.D., D.P.H." has used his car partly for private and partly for professional purposes. He had one allowance only—that is, for 1930–31 of £8 10s., being one-half of the full allowance of 15 per cent. on £110, the then written-down value of the car. He has now sold the car for £66 and bought another for £140. What should he claim for 1931–32.

*** If the car were entirely used for professional work the allowance would be as follows:

		£
Original cost		130
Deduct wear and tear allowance, 1930–31 ...	£17	
Deduct amount received on sale...	£66	
	—	83
Obsolescence allowance		£47

As only one-half of the expenditure can be deducted for income tax purposes—a ratio which appears to be not unreasonable—the income tax obsolescence allowance for 1931–32 will be £23 10s., in addition to the 15 per cent. allowance on the new car—that is, 15 per cent. of £140=£21.

Interest on Unpaid Purchase Money.

"AJAX" inquires what is the correct procedure where B purchases a part of A's practice and pays the amount of the purchase money in instalments, plus 5 per cent. per annum on the unpaid instalments.

*** B cannot claim any deduction in respect of the interest payments; on the other hand, he will have to account to the Revenue for tax thereon at the full standard rate. But he is entitled to deduct tax at that rate from the interest when paying it to A, and A should therefore include the amounts in his statement of *total* income as having been taxed before receipt.

LETTERS, NOTES, ETC.

Prolongation of Menstrual Life.

DR. P. W. L. ANDREW (Bexhill) writes: I am attending an old lady, 80 years of age, who first started to menstruate at the age of 12. She is married, and has had 11 living children, 3 stillborn, and 4 miscarriages. Her last was born when she was 46 years of age. Since then she has been absolutely regular, going twenty-eight days with a loss lasting three to four days, up to about five years ago. Now the loss is one to two days only, but quite regular, and, strange to say, occasionally accompanied by a certain amount of flooding, which is corrected by ergot and iron.

"American Heart Journal."

DR. MAURICE CAMPBELL (Hon. Wills Librarian, Guy's Hospital, S.E.) writes: I should be grateful if any of your readers can help me to obtain the following volumes of the *American Heart Journal* for the library at Guy's Hospital. We have made every effort to buy them through trade sources, here and in America, without success, and the early volumes are out of print. It may be that someone who does not wish to bind them has these spare parts, and is willing to sell them; if so, I shall be glad if he will write to me. The missing volumes are: vol. i, Part III; vol. ii, Part III.

Symbols of Sex.

"W. E. H." writes on the subject of Dr. Gregory Kayne's note (December 6th, p. 986): The symbol ♂ of the male sex represents the spear and shield of Mars, that ♀ of the female is the mirror of Venus. They descend to us from the alchemists.

New Driving Licences.

THE legal department of the Automobile Association will send free of charge to any motorist a copy of the new Regulations governing the issue of driving licences and the physical fitness of applicants. Requests should be addressed to the A.A., Fanum House, New Coventry Street, London, W.1.

Directory of Masseurs in Private Practice.

MR. J. STEWART BROWN, secretary of the Private Practitioners' Association (an association of registered members of the Chartered Society of Massage and Medical Gymnastics in private practice), writes to say that the *Directory*, recently published and announced in our columns (October 25th, p. 715), is free to medical practitioners, and will be sent on request to all doctors interested. His address is "Hygeia," Falmouth.

Vacancies.

NOTIFICATIONS of offices vacant in universities, medical colleges, and of vacant resident and other appointments at hospitals, will be found at pages 46, 47, 48, 49, 50, 51, 54, and 55 of our advertisement columns, and advertisements as to partnerships, assistantships, and locumtenencies at pages 52, 53, and 54.

A short summary of vacant posts notified in the advertisement columns appears in the *Supplement* at page 259.

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(Lorand, "Life Shortening Habits and Rejuvenation," 1922.)

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